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**Revenue from the Railside**

RAILWAY embankments, and the lineside, are not generally recognised as a source of appreciable and regular revenue, but the *G.W.R. Magazine* recently pointed out that, in a variety of ways, these premises actually do bring in a considerable sum each year. For example, at thousands of points throughout the G.W.R. system the lineside is cultivated as allotments, or used as fowl runs, market gardens, and for grazing tethered goats. In Devonshire several miles of ground alongside the line have been let for planting an apple orchard. Grass, hay from the banks and, in some cases, wild flowers also contribute to the revenue. Moreover, a charge, generally quite nominal, on windows overlooking the company's property is made to protect the company's interests. In contrast to these outward signs are the water pipes and cables which pass under the line and on which an annual charge is made. Similarly cables carried over the track and lattice girdered pylons erected on the company's property by the Central Electricity Board, make their contribution to G.W.R. revenue. Radio aerials, eaves or footings of buildings overhanging or extending on to the company's property also bring their quota, as do bridges and viaducts, the arches of which are frequently converted into shops, warehouses, and garages. Even the humble rabbit, in fact, contributes his share in the trapping rights let for his destruction.

**Air-Conditioning Defined**

Air-conditioning and streamlining are two terms of engineering which have been adopted by non-scientific writers and grossly over-worked in consequence. The latter has suffered most, for we read hourly of gas cookers, domestic refrigerators, automobiles, and other objects in which the mere blunting of their corners and angles is described as streamlining. Now, even dresses and hats for the feminine members of our species are alleged to be streamlined, to meet the needs, presumably, of fast young things. For several reasons we would not recommend them for anything more dashing than beauty parades. As recently as 1932, according to a bulletin by Maurice K. Fahnestock on "Essentials of Air-Conditioning," published by the University of Illinois, air-conditioning was defined as "the simultaneous control of all or at least the first three of those factors affecting both the physical and chemical conditions of the atmosphere within any structure. These factors include temperature, humidity, motion, distribution, dust, bacteria, odours, toxic gases, and ionisation, most of which affect in greater or lesser degree human health or comfort." This definition is due to the American Society of Heating and Ventilating Engineers and will, we hope, warn off any but the most stupidly intrepid journalist. It should be noted that, in the absence of humidity control, there cannot be air-conditioning in accordance with this definition. We ourselves have insisted several times on the insufficiency of equipment lacking the means for controlling humidity, and have drawn a line between equipment with, and equipment without, this means.

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**The Week's Traffics**

Last week's traffic returns of the four group railways compare with those of an ordinary week in 1935, and passenger train receipts now show increases, particularly on the Southern. Merchandise receipts were up except on the L.N.E.R. For the year to date the gross traffics of the four companies together amount to £55,639,000, an increase of £1,491,000, or 2.75 per cent.

	20th Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	%
L.M.S.R.	1,000 +	38,000 -	2,000 +	37,000 +	751,000 +	3.42
L.N.E.R.	1,000 -	8,000 +	11,000 +	4,000 +	491,000 +	3.04
G.W.R.	2,000 +	8,000 +	1,000 +	11,000 +	209,000 +	2.32
S.R.	8,000 +	2,000 -	1,000 +	9,000 +	40,000 +	0.57

London Transport receipts for the past week were £566,100, an increase of £15,900, and the total for the 46 weeks of the financial year shows an improvement of £297,300, at £25,044,400. Great Northern Railway (Ireland) receipts for the year to date show an increase of £13,850, and those of the Great Southern Railways an improvement of £45,815.

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**British Guiana Transport**

The Transport and Harbours Department of British Guiana controls railways, steamer services, the Bartika-Potaro road services, and harbour services. From the combined undertakings there was in 1935 a net revenue of \$119,911, an increase of \$10,784 over 1934, and the actual cost to the colony in 1935, after allowing for interest and sinking fund charges, amounted to \$79,711, or \$52,932 less than in 1934. The deficit on working the West Coast Railway of 18½ miles on the 3 ft. 6 in. gauge increased from \$7,692 to \$8,663, and the net receipts of the East Coast Railway of 60½ miles on the 4 ft. 8½ in. gauge were reduced from \$30,749 to \$24,594. Passenger traffic on both sections was affected by road competition. Railway

figures are compared in the accompanying table (the British Guiana dollar is equivalent to the U.S. dollar).

	1935	1934
Passengers .. .. .	1,167,792	1,320,212
Tons .. .. .	95,453	79,431
Train-miles .. .. .	237,384	232,506
Operating ratio, per cent. .. .. .	95.11	93.01
	\$	\$
Coaching receipts .. .. .	182,456	201,487
Goods traffic receipts .. .. .	134,177	118,711
Gross receipts .. .. .	326,215	329,938
Working expenditure .. .. .	310,284	306,880
Net receipts .. .. .	15,931	23,058

A profit of \$102,559 was realised on the harbours and of \$4,299 on the road services, and the loss on steamers was reduced from \$11,740 to \$2,878.

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### Overseas Railway Traffics

Both in currency and in sterling the traffics of the principal Argentine railways during the past fortnight have been discouraging, although the rate of decrease has varied considerably. Buenos Ayres & Pacific traffics in the two weeks have been £3,589 down, after an unbroken series of increases over a long period. The Buenos Ayres Great Southern has added £16,784 during the two weeks to its previous decrease, and Central Argentine traffics in the same period have been down as much as £74,831, partly due to three wet days.

	No. of Week	Weekly Traffic	Inc. or Decrease	Aggregate Traffic	Inc. or Decrease
Buenos Ayres & Pacific .. .. .	46th	99,295	- 1,059	3,913,318	+ 273,737
Buenos Ayres Great Southern .. .. .	46th	126,792	- 7,092	6,011,789	- 635,625
Buenos Ayres Western .. .. .	46th	51,704	- 4,376	2,098,146	+ 8,866
Central Argentine .. .. .	46th	108,984	- 35,662	5,441,060	- 134,877
Canadian Pacific .. .. .	19th	538,600	+ 86,000	9,022,800	+ 854,600
Bombay, Baroda & Central India .. .. .	6th	262,725	+ 9,375	1,114,950	+ 134,700

Gross earnings of the Canadian Pacific during the past two weeks shows an increase of £166,800.

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### L.N.E.R. Carriage Decoration

Necessity may be the proverbial mother of invention, but in fact sometimes invention is the child of chance. Blowing casually upon the surface of a can of paint, an L.N.E.R. employee in Doncaster works was recently struck by the variety of patterns he was able to create with the oil and surface scum. This then led him to apply the same principle to metallic paints blown while still liquid by a dry air brush on Rexine cloth. As a result the new first class coaches to be used on the Flying Scotsman this summer have a novel form of mural decoration for the panels above the seat backs. Rexines of blue and pink, chosen to match the upholstery of the compartments, have been treated in the way indicated with gold and silver paints. The effects achieved are extremely pleasing and help to create a most restful atmosphere. From a strong base the applied golds and silvers are carefully diffused until eventually they give way entirely to the normal colour of the Rexine itself. Since this intriguing form of finish is both cheap and simple to produce it may soon become a recognised feature of L.N.E.R. carriage decoration.

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### Systematic Etat Services

Latest among the converts to a systematic timetable is the progressive State Railways system of France. The interest of this development, also, is that over at least one route—that between Paris and Havre—it is combined with very high speed. As detailed on page 1019 of this issue, twenty daily trains, ten in each direction, between them maintain an average speed of 60.8 m.p.h. over the

141.5 miles separating these two cities. Three of the services each way are by non-stop railcars, which take two minutes under the two hours, and so average 72.0 m.p.h.; the fourth railcar in each direction requires an additional 2 min. in order to stop at Rouen. Second class as well as first class passengers are admitted to these cars, which is not the case in certain of the Paris-Deauville railcars. Third class passengers are catered for by a service of ten *rapides*, which with steam haulage and in most cases three or even four stops require only from 2 hr. 24 min. to 2 hr. 41 min. on their journeys, and with their 83-min. non-stop runs over the 86.6 miles between Paris and Rouen are responsible for a daily mileage of 866 at this speed. In a lower category comes a series of two-hourly expresses calling at the chief stations between Paris and Rouen, and a group of express railcars performing the same office west of Rouen, and with the trains to and from Paris giving an hourly service at systematic times between Rouen and Havre.

\* \* \* \*

### Hungarian Train Working

In post-war years, at least, the Hungarian State Railways have been notable for the weight of some of their trains, and although the heaviest make-ups have been reduced from the 700-750 tonnes common six or seven years ago, a number of trains regularly load up to 600 tonnes tare and about 640-650 tonnes gross. The Budapest-Vienna expresses as a rule load up to 320-360 tonnes tare, but certain trains making connections with north-west Hungary at Győr have 14 or 15 carriages taring 580-600 tonnes between that town and Budapest. Similar rakes can also be seen on the southern line from Budapest to Kelebia, but generally speaking the weight is somewhat less as there are not so many heavy foreign vehicles included, and the normal Hungarian corridor coach tares 35 to 39 tonnes. On the Hungarian section of the Budapest-Vienna main line the trains are hauled by the Kando electric locomotives, but except on that route most of the main line work is done by 2-6-2 tender engines of very modest proportions. The larger Pacific locomotives are not so numerous and appear to be employed mainly on the Budapest-Miskole line. Heavy train weights extend also to railcar services, and a feature of Hungarian train operation is the increasing use of these units for ordinary train haulage. The 120 b.h.p. cars regularly pull two trailers on stopping services, the gross train weight being about 75 tonnes, but some of the bigger cars deal with trains of seven or eight four-wheeled and bogie cars weighing altogether about 250 tonnes gross.

\* \* \* \*

### A.T.C. and Speed Restrictions

In an instructive address before some signalling officers of the German State Railway, published recently in the technical press, Dr. H. F. Arndt, a well-known signalling authority, dealt with the growth of automaticity in this branch of railway engineering. Speaking of the Reichsbahn automatic train control, which has done excellent work in this field (see our issues of September 7, 1934, and May 1, 1936), he said the system now incorporated speed reduction at curves and other places where restrictions were imposed. A track magnet tuned to a fourth frequency transmits the speed control effect to the approaching train some distance in rear of the section where the restriction applies, compelling the driver to reduce speed to the prescribed figure. Temporary permanent way restrictions are similarly enforced by portable track magnets laid down beside the first and second visual warning boards.

### Slip Coach Collisions

Accidents to slip coaches have been so rare that the Ministry of Transport Report on the collision at Woodford and Hinton on the main line of the L.N.E.R. (Great Central Section) on December 19 last has been looked forward to with much interest. It appears from Lt.-Col. Woodhouse's report that after the coach was slipped the cock in the vacuum of the train was not completely closed, and the driver was unable to maintain sufficient vacuum to keep the train moving. There was so much steam round the end of the train that the guard in charge of the slip coach failed to see it until too late to avert the collision. Though the type of brake pipe coupling used had been giving satisfactory service for many years, its failure led Colonel Woodhouse to investigate the type of slip coupling used by the Great Western Railway, which still maintains many slip coach services. As he found it to be of simpler construction and less liable to failure, he suggested its general adoption. The L.N.E.R. discontinued its G.C. slip services in February last, and now maintains only two such services, both on the G.E. section. Incidentally, the only other accident to a slip coach in which injury was caused to travellers occurred on the old Great Eastern at Marks Tey on December 29, 1906; it was due primarily to neglect of rules, and the type of coupling had nothing to do with it.

\* \* \* \*

### Side or Centre Corridors

The acknowledged conservatism of the average railway passenger is something with which those who design and build railway coaches have, or perhaps it would be more correct to say had, to concern themselves. Even the side corridor, when first introduced, did not find the favour expected, because it was felt that the movement of people in the corridor, and the attentions of ticket examiners, would interfere with the comfort of those hitherto accustomed to being secure from disturbance once a long distance train had started. It was not long, however, before even those who at first demurred had come to recognise the superiority of the corridor over the non-corridor type of vehicle, if only because it facilitated the taking of meals *en route*. The centre gangway coach, although not altogether a novelty when side corridors came into being, was, and probably still is, more generally disliked for its tendency to draughts and its absence of any form of partition between those seated next the gangway and others passing to and fro. So long as the passenger exists who will search the whole of a train, of no matter what length, to satisfy his desire for a compartment to himself, so long will there be a dislike of the saloon or open type of coach, except as a dining rather than primarily a travelling vehicle.

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### Single versus Double Track

Some interesting statistics relative to the economies made possible by converting little-used double track sections of line to single track were presented to the recent convention of the American Railway Engineering Association. Two stretches of line, one 32 miles in length, singled in 1933, and the other of 28 miles, singled a year earlier, furnished the basis of the calculations. In the former case the change resulted in an annual reduction of \$31,310 in maintenance and operating costs, and as the cost of conversion was only \$14,460, the saving represented 217 per cent. on the outlay. Normal average maintenance, which will be lower than in the first year, may be expected to give an even more satisfactory figure. Statistics in regard to the 28-mile line told a similar tale. No information was given, however, as to whether or

not average speeds, allowing for the crossing of trains on the single line, were lower than in the years when double track was in use. In any event, however, the report was decisively of the opinion that, where the volume and distribution of traffic on double-track lines has decreased to such an extent that the expense of double track operation can no longer be justified, singling calls for close consideration. Moreover, the report adds, in view of the progress that has been made in modern signal facilities, the economy in maintenance is so attractive that on lines at present single the necessity for doubling to meet increased traffic demands becomes ever more remote.

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### Minimising Rail and Wheel Wear

The editorial note on the Duplex bogie in our issue of March 20 alluded to the economies which can be realised in normal and high-speed services by its use, thanks to lower flange wear and the absence of slip arising from the free running and independent suspension of the wheels. A more detailed study of these economies is made by Mr. Alexander Newlands in his recently published book, "The British Railways," reviewed in our issue of February 14. Here Mr. Newlands remarks that the coning of wheels assists the negotiation of curves by the standard type of bogie, with wheels keyed to the axles, only when wheels and rails are new, and then not on curves of less than about 27 ch. radius. Moreover, hunting causes the wheels to be continually running on different diameters, so that one of a pair must always glide or skate, to a total estimated distance in a 600-mile average day's run of 1½ miles for each pair. Basing his calculations on 1933, Mr. Newlands shows that the cost of rail renewals and relaying in that year (£3,000,000) divided by the paying load carried (340,000,000 tons) gives an expenditure of 2.12d. per paying ton; or, placing the cost of rail and tyre renewal at the same figure, of 4½d. for both services. Mr. Newlands thus calculates that every penny saved by reducing rail and tyre wear per paying ton would represent almost £1,500,000 on the year's outlay. Whatever opinions may be held as to the basis of Mr. Newlands's calculations, they at least serve to indicate an important direction for the study of economies.

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### The Value of Large Locomotives

Credit has often been claimed for locomotives of relatively small dimensions that they have proved themselves capable of feats of haulage out of all proportion to their size and weight. On the other hand, experience in general appears to prove that the large and heavy modern locomotive, with the mastery that it holds over its work in abnormal as well as normal conditions, is ultimately the more efficient and economical unit to employ. This contention found striking proof in the figures we published in our issue of February 21 last relating to the working over the Victorian Railways of Australia of the four powerful Pacific express locomotives of Class S, which were introduced between April, 1928, and December, 1930, and up to the end of last year had run between them all but 1,400,000 miles. Their average annual mileage of 56,200 compares with an average of between 26,860 and 27,640 in the case of the three types whose duties they took over, and in a single year No. 301 ran 79,455 miles—a record for Victoria. Between major overhauls their average mileage of 82,000 compares with an average of 65,000 miles with earlier types. Furthermore, their reserve of power has made possible recovery of lost time on an extensive scale, and more punctual running of the Sydney Limited has resulted.



## Improving the Approach to Waterloo

**S**TEADY and continuous growth of traffic on the Southern Railway, stimulated by electrification, has intensified the problem of handling it efficiently at the various London stations. One after another modernisation schemes have been carried out during the last ten years or so to increase the accommodation by the installation of up-to-date colour-light signalling and power operation of points, and in some cases, as between New Cross, London Bridge, Cannon Street, and Charing Cross, by rearranging the tracks in addition. The ambitious scheme of improving the approach to Waterloo, a description of which we begin in our current issue, is thus no pioneering enterprise on the part of the Southern Railway, but is backed by an unique and valuable experience in similar works. The fact that the rearrangement of certain of the running lines between Wimbledon and Waterloo, a distance of about seven miles, together with the resignalling of some nine miles from the entrance to Waterloo down to Malden, was so successfully inaugurated last Sunday that the normally heavy traffic on Monday morning was run without a hitch, is a tribute to the experience and capability of the Southern Railway staff. The area concerned is one of the most congested and difficult to operate on the system and the decision to carry out the work was prompted not only by the fact that in ten years the number of trains handled daily into and out of the Waterloo terminus had increased by some 200 until now it is normally about 1,250, but also because that growth may be expected to continue at least as rapidly in future. The cost of the work on its completion in the autumn all the way from Hampton Court Junction (beyond Surbiton) right into the terminus will have amounted to £500,000. An idea of the increased capacity of the lines may be gained from the facts that much conflicting movement of trains at their approach to Waterloo will be eliminated, and that the headway between trains will be shortened from 4 to 2½, and in some cases 2 minutes.

## Earlier Holidays

**A**N editorial article on "Peak Period Problems" in our issue of August 23 last, suggested that a part solution might be found in national propaganda for earlier holidays, thus reducing the pressure in August. The matter has received considerable attention from the daily press in recent weeks, and the G.W.R. has issued an advertisement designed specifically to "point out to those of its patrons not influenced by family considerations that they will be well advised to take their holidays early." The announcement further states that the months of May, June and July offer very great advantages for holidaymakers, namely, longer days, less crowded and often cheaper accommodation, better transport facilities, and more freedom in which to enjoy sports and recreations; and concludes with the injunction "Leave August to the children." This is an excellent piece of propaganda and it is to be hoped that the sound advice offered will be followed by many of the thousands of holidaymakers who are free to take early holidays.

Unfortunately, many are compelled to take their holidays during the school vacation which, in the case of children attending the elementary schools, means that the holiday period is narrowed down to the month of August. The real solution of the problem seems, therefore, to rest upon a greater spreadover of the summer vacation. In Canada, for instance, it is the general procedure for the elementary schools to have a summer vacation of from six to eight weeks, spread over a period of approximately

three months according to the practice prevailing in the various provinces. This appears to be a highly commendable arrangement which, if introduced in this country, would go a long way towards solving the August holiday problem with which transport undertakings and seaside resorts find themselves faced each year.

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## The Future of Municipal Transport

**A**S a result of the formation of the London Passenger Transport Board the view has frequently been expressed recently that municipal transport undertakings will disappear and be replaced by transport boards or joint committees established in conjunction with large company operators. In the South Lancashire district around Manchester, and also on Tyneside, moves have already been made to investigate the possibilities of setting up transport boards on similar lines to that in London, and there are, of course, at present working in several areas joint committees of municipalities; of municipalities and railways; and of municipalities and motorbus companies. The subject was dealt with on Wednesday at the Birmingham Congress of the Institute of Transport in a paper by Mr. A. C. Baker, General Manager, Birmingham Corporation Tramway and Omnibus Department, who expressed the view that, whereas existing cases of satisfactory joint working were the result of special circumstances not applying to all areas, he was of opinion that municipally-owned transport would continue to find a useful sphere of activity. In his view a case could be made out that the public in many areas could be served equally well by co-ordination and co-operation between neighbouring transport authorities, whether municipal or company, each of which retained its own identity and responsibility for its own operations.

Perhaps the largest and most successful of such efforts is to be found in the area which the Institute of Transport is visiting, for, as Mr. Baker pointed out, the municipalities of Birmingham (with 1,484 vehicles), Coventry (143), Walsall (135), West Bromwich (49), and Wolverhampton (168), together with the Birmingham and Midland Motor Omnibus Co. Ltd. (a railway-associated undertaking with 1,150 vehicles), provided practically the whole of the regular road transport services over a very wide area. Since pre-war days there had been no competition, and the company operated its services directly into the centres of the five towns. The municipalities were responsible for the transport within their own boundaries and, in the case of Wolverhampton and Walsall, in the immediate vicinity, whilst the company provided services in the surrounding district, linking up all the towns and villages and in addition provided the local services in the smaller towns, other than the five municipalities mentioned. The result had been that the six undertakings have developed; they were financially successful; and were in a position to provide services at a frequency and at fares acceptable to the travelling public. It was difficult, in fact, to see what advantage could result from merging.

In the course of his paper Mr. Baker traced the process of development of municipal transport operation (as apart from ownership) during the past forty years, of which the first two decades were concerned largely with tramway operation, as, although a few municipalities were using motorbuses before the war, the numerical strength of such fleets was not high. After the war the monopoly enjoyed by municipal transport undertakings was seriously affected by the development of private motorbus services, and Mr. Baker instanced Glasgow, where it was estimated that at one time no fewer than 800 private buses were competing with the corporation tramway services. So serious



did the situation become that the Municipal Tramways and Transport Association prepared a Bill, the object of which was to simplify procedure in obtaining motorbus powers and to regularise the road passenger transport industry. This Bill was introduced in the House of Commons in 1926 as a private member's bill but was defeated on the second reading by the narrow margin of five votes. In 1928 the railway companies obtained powers to operate road passenger transport services, but protection was afforded to municipal transport services within the municipalities' own boundaries. Endeavours were made again to introduce the Municipal Tramways and Transport Association's Omnibus Bill into Parliament but without success, but it was interesting to note that this Bill was almost identical with Part V of the Road Traffic Act, 1930.

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### Agreed Charge for Live Pigs

PROCEEDINGS before the Railway Rates Tribunal in connection with agreed charges usually occupy a comparatively short time, but approval was only recently given to an agreed charge for the conveyance of live pigs, operating from January 1, 1935, which the tribunal began to consider over twelve months ago. The reasons for this very protracted hearing are as follow: under the Agricultural Marketing Act, 1931, the Minister of Agriculture was empowered to approve schemes for regulating the marketing of pigs and bacon produced in Great Britain, and in the following year he appointed a commission to prepare such schemes. This commission recommended the establishment of Pigs and Bacon Marketing Boards, and also expressed the view that a flat rate charge for the transport of pigs was an essential to any such marketing scheme. In 1933 the Minister issued the Pigs and Bacon Marketing Schemes (Approval) Orders, establishing these boards and enabling them to prescribe the terms and conditions of the contracts which registered producers and curers should make with regard to transport. After careful consideration, the boards confirmed the view of the commission that a flat rate transport charge was essential to the success of the schemes, and prolonged negotiations took place with the railway companies, culminating in the Rates Tribunal assenting to an agreed charge of 1s. 8d. per pig to operate throughout 1934. To meet cases of hardship, however, the companies agreed to exempt from this arrangement pigs produced at places not more than five miles from a curer's factory, and also pigs produced at places within five and fifteen miles from a factory where throughout road conveyance could reasonably be required. Difficulties subsequently arose in ascertaining the actual number of pigs subject to the agreed charge, owing to the companies being unable in many cases to distinguish them from the large number of pigs, produced locally and sent to the curers.

Negotiations were therefore opened with the boards towards the end of 1934 for the introduction of a more comprehensive arrangement, under which the railways would carry out the conveyance either by rail or road of substantially all pigs going to factories, whether intended for bacon or pork. After consideration, the boards finally reached agreement with the companies for the conveyance of pigs by railway from producers to curers at a charge of 1s. 8d. net per pig, station to station or private siding, or 2s. 1d. per pig for animals conveyed throughout by road. It was provided, however, that in certain cases pigs might be conveyed by road otherwise than by the railways, and in those cases the curers were to receive a rebate of a portion, but not the whole of the 2s. 1d. according to the distance the pigs were conveyed. Appli-

cation was accordingly made for the agreed charge by upwards of 400 traders, in pursuance of the terms of their contract with the Pigs Marketing Board. When, however, the Rates Tribunal began to hear these applications, on February 19, 1935, the hearing was postponed, as the Minister of Agriculture had agreed to refer to a special committee of investigation certain complaints by co-operative societies regarding the flat rate arrangement. This Committee reported on April 1, 1935, that the flat rate system is necessary for the efficient operation of the pigs and bacon marketing schemes, and the Minister therefore declined to intervene.

Between April and December further proceedings before the Rates Tribunal were postponed pending the result of certain litigation in the Chancery Division regarding the powers of the Pigs Marketing Board, but as no decision had been reached at the end of the year, the hearing of the applications was resumed by the tribunal in March this year. Evidence was then given that while over 400 registered curers had signed the agreement, seventeen co-operative societies among them had raised the important issue that the requirement of the board that registered curers should contract with the companies for the conveyance of all pigs was *ultra vires* the board, and, in fact, that their signature had been obtained under duress. The number of pigs conveyed by the companies during 1935 was nearly 1,500,000, and as those forwarded by the societies in question only numbered 35,000, it was finally agreed that their applications should be withdrawn and that payment should be made by these societies on the ordinary basis. Figures were then given showing that during 1935 the companies carried 107 per cent. more live pigs and earned 96 per cent. more revenue in the period March 1 to December 31, 1935, as compared with the corresponding period of 1934, and, as the tribunal was satisfied that the objects secured by making the agreed charge could not be obtained by the grant of exceptional rates, it approved the charge of 1s. 6d. net per pig in the case of the whole of the remaining traders.

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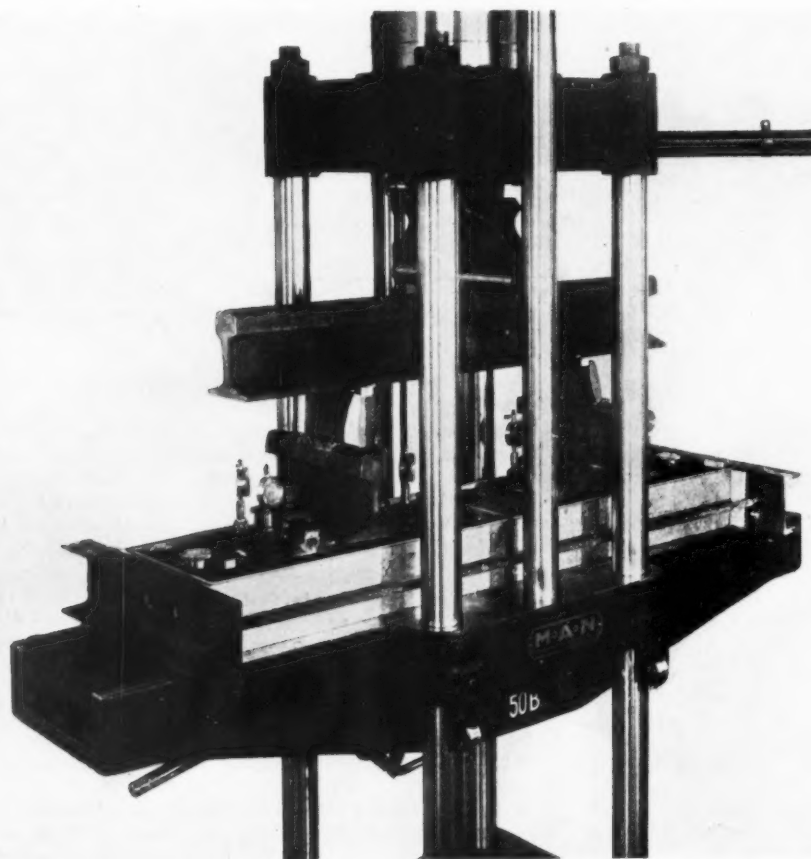
### Testing Signal Equipment

AT a meeting of the Institution of Engineering Inspection on May 14, the Chairman, Major Myers, commented on the fact that the security of railway travelling was practically taken for granted by passengers, the overwhelming majority of whom had no conception whatever of the amount of thought, time, and money spent on the installation, maintenance and operation of the apparatus to which it was due. We believe this to be correct, for what little does appear on the subject in the ordinary press is, to say the least, not particularly accurate. Major Myers then invited the meeting to hear an informative address by Mr. D. G. Shipp, who is himself engaged in the signalling industry, on the inspection and testing of power and automatic signal and point apparatus. Mr. Shipp accurately conveyed how important is the part played today by the signal engineers, and the degree to which the resources of scientific design and manufacture have been blended to produce the apparatus protecting the heavy traffic on the Underground and certain suburban lines, as well as parts of the main lines, where it will doubtless be much extended in the near future. Testing these installations before putting them in service, as well as testing their components during manufacture is, as Mr. Shipp emphasised, a skilled occupation, to be performed with conscientious care. The working out of specifications plays a great part in this, and much good work has been done in recent years, to which Mr. Shipp referred, under the auspices of the British Standards

Institution, in co-operation with the railways and the Institution of Railway Signal Engineers. The enforcement of specifications is no less important.

Colonel King raised an interesting point when he referred to the possible vulnerability of highly concentrated signalling schemes, and the ease with which they might be paralysed by military action. This criticism has also been made against electric traction, and has, no doubt, some force, but we do not imagine that increases in amenities will be much influenced by considerations of what might happen in abnormal circumstances. At all events, the danger, real or supposed, has not prevented electric traction and automatic signalling finding their way to sections of line right on the frontiers of some countries. Automatic signalling was actually resorted to on the Eastern Railways of France during the war to afford greater security and traffic capacity on the lines out of Paris, though admittedly the entire apparatus was not dependent on one source of energy. Still, the general adoption of automatic signalling on that and other French lines shows that no great importance is attached to the objection above mentioned.

### Behaviour of Screw Fastenings in Wooden Sleepers



In elaboration of the article under the above title which appeared in "The Railway Gazette" last week, we are now able to illustrate the testing device used for applying the vertical and horizontal loads. These tests and the results obtained from them, which were described in our article, were very fully described and illustrated in the issue of our German contemporary "Organ für die Fortschritte des Eisenbahnwesens" dated July 15, 1934, and it is to that paper we are indebted for permission to place the results of these important experiments before our readers

## LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

### The Railway "Sangwich"

TO THE EDITOR OF THE RAILWAY GAZETTE

London, May 18

SIR,—I observe from the press that Mr. Arthur Towle, Controller of the L.M.S. Hotels, has been, what is described as, "Giving the lie to the railway sandwich joke." I wonder if Mr. Towle was conscious during his interview that he was dealing with something time honoured in literature if not in fact. The railway sandwich probably reached the height of its unenviable reputation *circa* 1860.

Readers of Charles Dickens's "Mugby Junction" will be familiar with the "sawdust sandwiches under glass covers" and the "barrier of stale spongecakes erected atop of the counter." It will also be remembered that at Mugby Junction was the model training establishment to which other refreshment rooms sent their imperfect young ladies to be finished off in the art of ignoring clamorous customers by "surveying the line through a transparent medium composed of their heads and bodies"; and—crowning touch—of "smoothing the lace cuffs at their wrists while the public foamed."

We learn from Mr. Arthur Towle that the lineal descendant of the sawdust sangwich is now appetising, nourishing, and sold in large quantities. It would be interesting to learn from him if any lineal descendants of the young ladies employed at Mugby Junction refreshment rooms in the sixties are now (*sed quanto mutata ab illis*) in the employment of the L.M.S.R. One feels that the union of Mrs. Sniff and the servile Mr. Sniff cannot have been fruitful, but surely such determined young ladies as Miss Whiff and Miss Piff must have mated successfully and trained their offspring for the same service of which they themselves were such bright ornaments!

I am, Sir, yours faithfully,  
"SANGWICH"

**L.M.S.R. PORT DEVELOPMENTS.**  
—In order to cater for increased business, the L.M.S.R. is carrying out extensive additions to the siding accommodation at the Mersey port of Garston (near Liverpool) and at Speke, nearby. These improvements will provide facilities for 600 more wagons at Garston itself, and sidings to hold 427 wagons, together with a shunting neck accommodating 125 wagons, at Speke. A large area of land has also been purchased at Speke for the storage of timber imported through Garston. During 1935 the total traffic dealt with at Garston docks amounted to 2,030,421 tons, representing an increase of more than 337,000 tons compared with the previous year. Export coal, mainly to Ireland, alone accounted for an increase of over 295,000 tons, and the new facilities to be provided by the L.M.S.R. (the owner of the port) will enable the company to keep abreast of the expanding business.

## PUBLICATIONS RECEIVED

### Boiler Feed Water Treatment.

By F. J. Matthews. London: Hutchinson's Scientific and Technical Publications, Paternoster House, E.C.4. 8½ in. × 5½ in. × 1¼ in. 256 pp. Illustrated. Price 12s. 6d.—This volume deals authoritatively with the very important subject of the treatment of boiler feed water, and although it does not include specific reference to locomotive boilers, it should none the less be of value to railway mechanical engineers. The work is divided into five portions, the first of which deals with natural water supplies, the second with scale formation, the third with corrosion, the fourth with foaming and priming, and the fifth with analysis and routine testing: the purpose of thus dividing the subject matter into sections is to deal with the principal operating problems separately.

The author is obviously an expert in the chemistry of water treatment, and devotes an adequate amount of space to this very necessary part of the subject. Methods of treating water and the apparatus for this purpose also receive a full measure of attention. Our only criticism is that the railway aspect of the matter is not touched upon, for nowhere are boilers more severely stressed than under locomotive running conditions, and nowhere is it of greater importance that suitable waters, whether available naturally or as a result of treatment, should be used. The difference in cost of maintaining the boilers of locomotives under bad and good water conditions is very great, added to which is the fact that the increasingly arduous duties apportioned to the locomotive under modern conditions make it above all essential that, as steam generators, their efficiency should be maintained.

**L.M.S. Guide to Scottish Holiday Resorts.** 8½ in. × 5½ in. 400 pp. and folding map. Fully illustrated. Price 3d. net.—As we mentioned when reviewing "Holidays by L.M.S." in our issue of March 13, the company reserves a special guide for its Scottish resorts, a copy of which is now before us. A businesslike introduction dealing with the varied scenery and diversity of holiday attractions offered by Scotland prefaces the main portion of the book, which is an alphabetical guide to hotels and boarding houses at all important inland and coastal centres. This section is interleaved with photogravure illustrations selected to reinforce the arguments in favour of Scotland for holidays put forward in the opening chapter. These illustrations, too, are arranged alphabetically, so that it is the easiest possible transition from a view of any chosen beauty spot to the page listing the home comf., 2 pianos, and mod. con. of the local landladies, or the large public rooms and superlative outlook of the hotels. Each resort

dealt with is given a short descriptive paragraph dealing with its situation, historical associations, scenery, and general amenities.

### Summer Holidays in the British Isles.

—We have received from Thos. Cook & Son Ltd. an illustrated handbook of holidays and holiday tours in Great Britain, a feature of which is the alphabetical section quoting charges for 7- and 14-day periods with three categories of accommodation at the principal resorts, and including a third class monthly return from London. Whether the traveller intends making a single seaside or inland town the centre for excursions, or taking in a wider area by rail and road, he will find itineraries in this guide planned with an experience that ensures the most pleasurable use of the time at his disposal. A novelty this year is an air cruise round Great Britain at 46½ guineas a person, inclusive of hotel accommodation and ground excursions. Departures from London are scheduled on four dates from June to August.

### Pickfords Travel Literature.

Holland is now among the European countries which the traveller can visit by means of an inclusive tour designed to minimise his expenses, eliminate trouble, and at the same time ensure that he misses nothing worth seeing. A seven-day tour of this description is advertised in literature we have received from Pickfords Travel Service, 205-6, High Holborn, London, W.C.1, an all-in fee of £15 5s. providing for the journey each way from London and a comprehensive itinerary from Sunday to Saturday. Another booklet enumerates further arrangements for Continental tours by rail, road, and air, and the firm is also co-operating with the Spanish Tourist Service in the arrangement of holidays in, and cruises to, Spain. Other cruises of various lengths and covering all the popular localities are listed in another booklet. More extensive sea travel, but at very favourable inclusive rates, is provided by Cunard White Star escorted tours to Canada and the United States, and a special third-class passage to New York on the *Normandie*, in conjunction with a coast-to-coast road journey in the U.S.A. Pickfords advertises its usual comprehensive travel arrangements for important events in this country, including a steamer cruise from Weymouth on May 27 to see the *Queen Mary* sail on her maiden voyage.

**Rotary Vacuum Pumps.**—The compactness of Holland/S.L.M. rotary vacuum pumps is well illustrated in a new descriptive folder which we have received from the makers. Several of these units are shown at work in an electric lamp factory, where the economy of floor-space achieved by their design is very evident. The machines are supplied with water or air cooling

according to capacity. A two-stage water-cooled pump gives a vacuum of up to 99.95 per cent., and a single-stage machine of the same type has a maximum capacity of up to 99 per cent. Air-cooled pumps have a range of up to 60 per cent. vacuum.

**Grinding Operations.**—The Churchill Machine Tool Co. Ltd. has published a series of leaflets illustrating diagrammatically and with photographic reproductions various processes being carried out by the company's grinding machines. Typical production speeds mentioned are motor armature shafts of 35-40 tons tensile steel at 7 min. per shaft with the 10 in. × 36 in. B.V. hydraulic plain grinder, and 100 bores of change-speed gears per hour with the HBA automatic sizing internal grinding machine, claimed to be the world's fastest internal grinder.

**Drill and Chisel Steels.**—Hadfields Limited, East Hecla and Hecla Works, Sheffield, sends us a booklet and a leaflet dealing respectively with Hecla 18 and 19 mining drill steels, and Hecla 70 chisel steels. The drill steels are produced in hollow and solid sections. The company also undertakes the manufacture of finished drills ready for instant use, with bits of any shape desired and shanks to fit all rock drills. Hecla 70 chisel steels require only the simplest treatment for rehardening, and when chisels become dull they can be resharpened with a smooth file. The steel is almost unbreakable.

### Splitting and Guillotine Shears.

—We have received from Henry Pels & Co. Ltd., 32-38, Osnaburgh Street, London, N.W.1, two catalogues of splitting and guillotine shears. The splitting shears will cut plates of any length and width right through the middle, and are combined with a punch, cropper, and notcher, so that they can undertake without modification a very wide range of work. Equal adaptability to different classes and thicknesses of material, and high exactitude of working, characterise the Pels guillotine shears by reason of the adjustable angular drawing cut which is a feature of their design.

**Aluminium in Industry.**—A pictorial booklet in photogravure with this title has been published by the British Aluminium Co. Ltd., Adelaide House, King William Street, E.C.4. The illustrations are designed to show applications of the metal in various forms to industrial purposes, among which transport is well represented. An illustration from THE RAILWAY GAZETTE is reproduced showing Alfal insulation in use on the boiler, cylinders, and steamchests of the L.N.E.R. locomotive *Cock o' the North*, and examples are given of aluminium panelling for motor vehicles, including a London Transport trolleybus. For tube trains, London Transport is using doors cast in Alpac modified aluminium silicon alloys, a class of material also adopted for vehicle doors by the South Indian Railway.



## THE SCRAP HEAP

The L.M.S.R. Royal Scot express was a miniature flower show on wheels on Friday last (May 15) when the dining cars were decorated with over 300 British bulb blooms supplied by the Spalding and District Bulb Growers' Association. The idea was to acquaint the travelling public with the excellence of British-grown bulbs.

The Glasgow (Queen Street) station hotel was taken over by the North British Railway Company in 1847, and, prior to its opening, the building was entirely reconstructed. The alterations involved the removal of all floors and partitions, leaving standing practically only the four external walls.

In some observations on the new "lighting system of signalling at Waterloo," *The Times* says that "the distances between running trains can be shortened in many cases by 100 per cent." We believe that a similar effect has sometimes been obtained elsewhere, though not necessarily with the aid of colour-lights.

### THE 125 M.P.H. "COLOUR" EXPRESS

A press telegram from Berlin states: "A red locomotive, four green passenger coaches, and a red dining car have temporarily reached a speed of 125 m.p.h. during speed trials on the German Railways. The new train is being tried out on the Berlin-Hamburg route." The passengers, anyway, must be glad it was only temporary.

Now, although it [Waterloo station] cannot be said to be one of the most convenient, the South Western Company can at least boast that they own the largest railway terminus in London. Such as it is, however, it is probable that company and public will both have henceforward to make the best of it. To recast so huge a structure, with 100,000 passengers, and 700 trains in and out every day of the year, is a simple impossibility; a task that, unless the population of London all take holiday for a twelvemonth, is hardly likely to be so much as attempted.—*Sir William Acworth, writing in 1888.*

Construction of a new children's railway line in Dnepropetrovsk—the first in the Ukraine, and the third in the U.S.S.R., was begun on January 26. The new line, which will include two main stations and streamlined locomotives and coaches, is being built on the initiative of Khatayevich, Secretary of the Dnepetrovsk Province Party Committee. The line, which will be two kilometres long, will be equipped with an automatic block-signal system and other modern features. School children and Young Pioneers of the city will take active

part in the construction of the line and will receive help from the local factories and Komsomol organisation. The first railway line for children was built last summer in Tiflis, while the second line has been under construction for the past four months in the Sokolniki District in Moscow.—*From the "North-China Daily News"*

Large-scale cultivation of mushrooms in the disused railway tunnels on the Liblar-Dernau line at Ahr is to be undertaken by the German State Wine-growing Technical Institute at Marienthal. Successful experiments have already been carried out and a crop of 15,000 cases is expected in the near future.

### HOT COALS TO NEWCASTLE

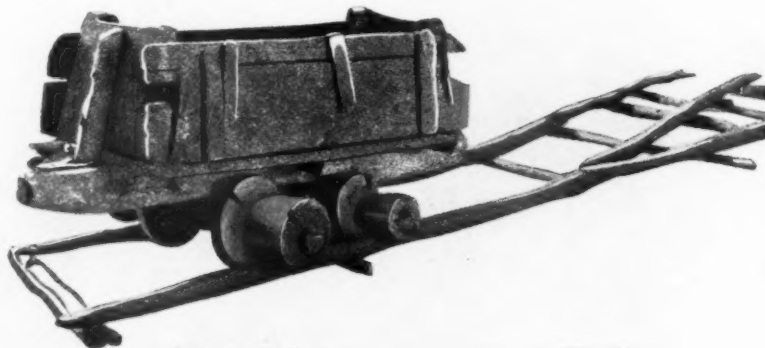
I have just heard a quite pleasing story with a local point. It was told by Sir Walter Langdon-Brown, late Regius Professor of Physics at Cambridge. Some time ago, he said, he happened to be in the Sudan, and one sun-baked afternoon he reached a railway station in the desert. Grateful for shelter from the terrific glare, Sir Walter looked round. He saw a poster, the only one exhibited. The caption beneath it ran: "Come to Sunny Southport."—*From the "Liverpool Post."*

The model of a newly-invented power, applicable for railways has been within the last few days exhibited at the London Tavern. The power proposed to be applied is that of the rocket. The wagons, instead of being drawn forward, as they are by the ordinary steam apparatus, are placed before the propelling power. The wagon or engine containing the rocket is placed at some distance behind the wagons or carriages for the conveyance of merchandise or passengers, but connected with them by two bars of iron, which may be made of any length, and thus place the passengers at such a distance from the rocket as to preclude all possibility of danger. By means of

the rocket, which has hitherto been only employed in the service of gunnery, a much greater power is derived than from steam, and the projector imagines that the speed of a hundred miles an hour may be obtained from it, without any fuel, or any of the inconveniences occasioned by steam.—*From the "Morning Advertiser" of April 9, 1836.*

### A XVIIth CENTURY WAGON AND POINTS

The accompanying illustration shows a wooden wagon and portion of track with points—strictly speaking only one point—said to date from the 16th century and to be seen in the permanent way section of the Verkehrs- und Baumuseum, Berlin. This highly interesting collection, totalling over 160 items, was bequeathed to the museum by the late Herr A. Haarmann, a former General Manager of the Georg-Marien Mining and Blast Furnace Union at Osnabrück, and himself originator of some of the early forms of steel sleeper construction, both transverse and longitudinal, used in Germany in the 'eighties. He was also, it would appear, the author of an historical treatise on permanent way. The wooden wagon represents a form of transport used in the gold mines in Transylvania (Siebenbürgen), once a province of Hungary but now in Roumania. The track is composed of round wooden bars, and the gauge is approximately 48 cm. (1.57 ft.). The most interesting feature is the use of a movable point consisting of a rail pivoted at the apex of the legs and serving equally well for either direction of running. In his book "Die Hundertjährige Eisenbahn," the late Herr Artur Fürst says, when speaking of this exhibit, "points of this type are in use at the present day at the Apostel mines at Brád, in Transylvania. The Brad type of switch has only one movable part and is suited only to a track gauge of about 40 cm. (1.31 ft.), as the curve is very sharp and the tongue so short that it forms the wing portion at the same time. It is merely a wooden billet that can be moved with the foot."



Sixteenth century mining wagon and track in Berlin museum

## OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

### BRAZIL

#### Rêde de Vição Paraná-Santa Catharina: Estrada de Ferro São Paulo-Rio Grande

The action of the President of the Republic in authorising the Treasury to grant a credit of 50,000 contos, to be devoted to improvements on the above system, has been favourably received by the press in the State of Paraná. Forming the principal connecting link between the States of São Paulo and Rio Grande do Sul, and carrying considerable tonnages of timber, maté, cotton, coffee and cereals, the railway will, it is believed, soon justify its development, in which it has hitherto been hampered owing to lack of funds for rolling-stock acquisition and permanent way maintenance.

#### Central Railway of Brazil

In an interview with the press, Snr. Delamare São Paulo, Traffic Superintendent of the Central Railway, said that the shortage of rolling stock, with its resultant loss of traffic and inconvenience to traders, had become so serious that special measures were urgently required. To repair damaged vehicles and purchase new ones in sufficient quantities would cost, he said, more than 50,000 contos (roughly £600,000 sterling), a sum impossible to find at present, and so it had been decided to draw up contracts with reputable firms who despatched heavy tonnages by the Central Railway, whereby, over a period of previously-agreed time, the firms would themselves supply wagons and/or repair some of those lying idle. The railway would carry these firms' traffic at specially reduced rates, dependent upon a certain minimum tonnage, and be entitled to use any wagons supplied as and when it considered fit, up to the expiry of the respective contracts, the cost of maintenance being met by the suppliers. All freights received would be credited to the interested parties, until the sums accumulated defrayed the cost of acquisition of, or repairs to vehicles. At the end of the stipulated period the new wagon stock supplied would become the property of the railway, whether the contracting firms despatched the minimum tonnages during this period or not.

#### Three Million Tons of Traffic Offering

There was no other way, Snr. São Paulo concluded, of meeting the situation satisfactorily, or of handling the immense amount of traffic offering, there already being guaranteed to them the transport of 3,000,000 tons of mineral products, held up through insufficiency of rolling-stock.

On March 29, to commemorate the

78th anniversary of the inauguration of the Central Railway, the foundation-stone of the new Dom Pedro II station in Rio, forming part of the works in connection with the suburban electrification, was officially laid by the Minister of Transport & Public Works, Snr. Marques dos Reis. The ceremony was attended by the General Manager and principal officers of the railway, and also by representatives of the Leopoldina Railway and the Light & Power Company and by various federal and municipal authorities.

### ARGENTINA

#### Agricultural Enterprise on Santa Fé Provincial Railway

The Santa Fé Provincial Railway (a French company) has recently acquired a tract of land comprising about 80 acres, situated in proximity to Ingeniero Chanourdie station (Department of General Obligado), for the purpose of establishing an experimental farm, presumably on lines similar to those which the Central Argentine, B.A. Great Southern, B.A. Western, B.A. & Pacific, and Entre Rios & N.E. Argentine Railways have been operating with great success for some years past, and which have given a valuable impetus to agricultural development and colonisation in the respective zones. The farm referred to will be divided into different sections allotted to the cultivation of maize, linseed, cotton, vegetables, alfalfa, hemp, peanuts, sesame and the citrus variety of fruits, oranges, lemons, tangerines, and grape-fruit.

### EGYPT

#### Reduced Fares Bring Increased Receipts to the E.S.R.

Bookings this year during the Courban Bairam Feast (March 4-7) were very heavy, due chiefly to the Agricultural and Industrial Exhibition, which was then being held in Cairo, and for which tickets were issued by rail for half the ordinary return fare. The approximate results show a net increase of £E.22,387 over last year, while last year's receipts showed a decrease of £E.4,942 over 1934.

#### Another Surprise Train

During the Feast of Sham El-Nessim, on April 13, the State Railways advertised a surprise train, for which some 3,943 tickets were sold, necessitating running the train in three portions. The destination of the train was Ismailiya and the fare charged was P.16 (3s. 2½d.), which included a lottery ticket for one free ticket on the seaside

excursion train during the summer. The return distance from Cairo to Ismailiya is 317 km. The net profit realised from this enterprise was £E.540,250 m/ms.

### UNITED STATES

#### Collection and Delivery Controversy

The plan of the Eastern railways to provide collection and delivery of merchandise freight, which was to have gone into effect on April 1, but which [as recorded in our issue of April 24.—Ed. R.G.] was suspended until November 1 by the Interstate Commerce Commission, is not, apparently, to lie dormant during the interim. Several Eastern railways, among them the Pennsylvania, the Wabash, and the Grand Trunk, which have provided free collection and delivery service for three years for all less-than-carload shipments for distances up to 260 miles, have petitioned the commission to allow them to provide this service for shipments regardless of the distance of the rail haul. The only difference between the tariff proposed by these railways and that now under suspension by the commission is that the latter provided an allowance of 2½d. per 100 lb. to traders electing to perform their own collection or delivery, while the proposed tariff makes no allowance.

#### Road Hauliers Antipathy

Meantime the National Association representing road hauliers has asked the commission to revoke the collection and delivery tariff already in effect on the Western and Southern railways, and to investigate the whole matter thoroughly. The ramifications of the collection and delivery controversy are extremely complex, but the essential issue is simple: The local cartage agents are attempting to enforce a vested interest in hauling goods between rail depots and traders' places of business. The railways, faced with competition by over-the-road hauliers who perform their own collection and delivery, have been forced to take steps to eliminate local cartage as an independent business (although the cartage concerns may remain as contract hauliers, agents of the railways). Thus the issue is joined. It would be unsafe to predict the outcome. There is, in America, a sentimental feeling amongst politicians for the "little fellow" in business which may work to the cartage agents' advantage. On the other hand, the trading community is overwhelmingly favourable to the performance of collection and delivery service by the railways.

Meantime, the commission has initiated an investigation into the business of the "forwarders." These concerns assemble small shipments, combining them into carloads, making their profit from the difference between the carload and the less-than-carload rates of the railroads. Having at their command a large volume of traffic which

they may divert from one railroad to another, their position is one of considerable power, and they are not subject to governmental regulation, as the railways and road hauliers are.

#### Compromise on Fares Fails

The Eastern railways, which were ordered by the Interstate Commerce Commission to reduce standard fares from the present 1-8d. a mile to not more than 1d. for tickets available in "day coaches" only, and 1½d. for tickets available in Pullman cars, petitioned for a compromise basis of 1½d. for day coaches and 1½d. for Pullman travel. The Long Island Railroad sought to be an exception, and asked to be allowed to charge 1½d. per mile for both Pullman and coach travel. The Interstate Commerce Commission, however, by a vote of 6 to 5 has rejected these petitions, adhering to its original order requiring the 1d. and 1½d. rates to be put into effect on June 2.

There is considerable dissatisfaction with the commission's adamant stand, and it is not unlikely that its order will be contested in the courts by the Eastern railways. One railroad, however, the Baltimore & Ohio, is agreeable to the commission's order and is prepared to obey it. Should this company take this step, most of the other railways would be forced for competitive reasons to institute equivalent rates, even if the courts should uphold their right to maintain them at a higher level. In any event, reduced rates are on their way, because there is no defence of the present 1-8d. fare. The only question is what the reduced basis shall be.

### SWITZERLAND

#### Extensive Accelerations (a) Federal Railways

With the introduction of the summer timetable on May 15, the Swiss Federal Railways will introduce a number of supplementary and accelerated services, both for fast and stopping trains. Of the former, the new Zurich-Geneva business expresses received attention in the January 24 issue of THE RAILWAY GAZETTE and constitute the most remarkable acceleration effected in Switzerland since the electrification of the main lines. These trains began running experimentally on May 4, chiefly for the instruction of the staff, but also carrying a limited number of passengers; as they cannot, before the change of timetable, follow the proper path allotted to them, they will until that date make certain service stops and the overall time will be longer than as scheduled.

Several other fast "light trains," composed of ordinary coaches hauled by standard electric locomotives, will be introduced on May 15, and a considerable number of trips will be made in all three operating divisions of the Federal Railways by the popular "Red Arrow" railcars. With the four new

ones now being placed in service, the Federal Railways will have six of these high-speed lightweight cars, and three of them will be used for regular fast and stopping services, the remainder being kept in reserve and extensively used for special party trips and excursions.

Stopping train services throughout the system have been very carefully examined with a view to reducing the duration of station stops by confining the carriage of mails, cattle, milk, &c., to a few trains only on each line, with the result that local passenger trains have now been divided into three categories: (1) "tramway" trains, for passengers, luggage and parcels only, subdivided into (a) light "tramway" trains, with a maximum of 150 tonnes, average speed of 50 to 55 km.p.h. and stops of not more than 30 sec. duration, and (b) normal, also with very brief stops but somewhat heavier trains; (2) accelerated "omnibus" trains, with limited facilities for mail, express goods, milk and other traffic, strictly defined for each train; brief station stops and average speed of 40 to 45 km.p.h.; (3) ordinary "omnibus" trains, with unlimited facilities for all kinds of traffic.

The increase of services as from May 15 on the Federal Railways will represent 1,631,042 train-kilometres, composed as follows: new Zurich-Geneva limited expresses, 138,908; lightweight "Red Arrow" railcars, 546,861; trains of ordinary stock, 945,273 train-km.

#### (b) Other Lines

Timetable improvements will not be confined to the Federal Railways. The Lötschberg system, for instance, has revised the services on all its lines and is introducing a number of new trains, hauled by the lightweight railcars illustrated and described in the December 13, 1935, *Diesel Railway Traction Supplement* of THE RAILWAY GAZETTE; these trains will have stops of not more than 20- to 30-sec. duration and an average acceleration of 20 per cent. over the previous timings. This particularly concerns the Berne-Neuchâtel, Berne-Belp-Thun (Gürbe Valley), Berne-Schwarzenburg, Thun-Interlaken, and Spiez-Erlenbach-Zweisimmen lines; on the Lötschberg main line, trains will generally be hauled by heavy motor-coaches instead of locomotives. In order to relieve the passenger trains of milk, express goods and similar traffic several new light goods trains will run on the various lines.

### FINLAND

#### State Railway Finances in 1935

The results of the working of the State Railways in Finland for 1935 have been satisfactory. The length of line at the end of the year was 5,363 km. (3,332 miles), as against 5,315 km. (3,303 miles) in 1934. Passengers carried were 18.6 millions, against 17.9 millions, freight and express parcels were 12 million tonnes, against 12.5

millions, and ordinary parcels increased from 1.4 millions to 1.5. Passenger receipts amounted to Fmk. 227 millions, against 215.6 millions; goods receipts 582.2 millions, against 570.4; total receipts from all sources being 853.0 millions, against 829.5. Operating charges were 639 millions, against 611, or, inclusive of interest and depreciation charges, 719.3 millions, compared with 673.8 millions in 1934. Net operating surplus was thus Fmk. 133.7 millions, against 155.7 the year before, giving an operating ratio of 84.33. The staff employed was 25,838 persons. (Present rate of exchange is about Fmk. 220 = £1.)

### THE NETHERLANDS

#### Co-ordination of Transport

The position at present with regard to co-ordination of transport is not quite as published in THE RAILWAY GAZETTE of April 24, for, though passenger transport is regulated by the Act of 1926, which inaugurated a system of licensing, goods road traffic is still uncontrolled. The Government, which has to make good railway deficits, asked Parliament to accept Section 47 of a public economy Bill last year, to enable it to co-ordinate traffic by Order in Council (with the approval of Parliament within two years). It is this section that came into force on April 1, with the result that the Minister of Waterstate, who handles transport problems, is authorised to take full measures towards co-ordination. These include the following licensing conditions: (a) the route, (b) number of services, (c) timetable, (d) tariffs, (e) safety, with compulsory third-party insurance, (f) hours of duty and rest for the staff, (g) all other measures for securing the safety of traffic.

### DENMARK

#### Railcar Developments

Owing to certain alterations in the working of the Lyntog, or high speed diesel railcar services, the number of daily runs performed at speeds of 58 m.p.h. is now considerably greater than that given in the article on "Railway Speeds in 1935" in our March 27 issue. During the currency of the past winter's timetable, there have been ten runs in Denmark, totalling 604 miles, performed at average start-to-stop speeds of 58 m.p.h. and over, and of this total three runs (114 miles) have been timed at over 60 m.p.h. and one run (38 miles) at over 62 m.p.h. The latter was the run of the *Ostjyden* over the 38.3 miles from Roskilde to Slagelse in 36 min., at a start-to-stop speed of 63.8 m.p.h. From May 15 this time is curtailed to 35½ min., giving a start-to-stop speed of 64.7 m.p.h. In the reverse direction the same run will be made in 37 min., at 62.2 m.p.h., and these will remain the fastest runs in Denmark, although



closely approached by the *Vestjyden*, which will now run the 68.5 miles from Copenhagen to Korsør in 67 min., at 61.3 m.p.h.

The *Ostjyden* which when first introduced ran between Copenhagen and Aarhus, calling at principal stations *en route* (whereas Aarhus was the first advertised stop of the *Kronjyden*, running through to Randers and Aalborg), has now been diverted from Langaa to run north-westwards to Viborg, Skive, and Struer. All the principal towns of Denmark are thus linked by the Lyntog, which cover a total daily mileage of 1,485 on their three different routes. A new service, consisting of a diesel-driven railcar with trailer, runs twice a week between Frederikshavn, in the extreme north of Jutland, and Padborg, on the German frontier, covering the whole distance of 275 miles, with only four intermediate stops, in about 6 hr. Leaving Frederikshavn at 11.32 a.m., the train reaches Padborg at 5.45 p.m., and by connection Hamburg is reached at 9.7 p.m.; in the reverse direction departure from Hamburg is at 8.30 and Padborg at 11.55 a.m., and arrival at Frederikshavn is at 5.56 p.m.

#### Accelerated International Services

As compared with last year's fastest time of 11 hr. between Hamburg and Frederikshavn, the new service reduces the journey to 9½ hr., and connects with the Frederikshavn-Oslo service of the United Steamship Company, the connecting link with Sweden being provided by the Frederikshavn-Gothenburg steamer service. Prior to the opening of the Little Belt bridge, much of the traffic between Copenhagen and the north of Jutland was carried by water between Kalundborg and Aarhus, but the accelerations following on the opening of the bridge and the introduction of the Lyntog diverted so much traffic to the railway route, with consequent congestion, that fares via Kalundborg and Aarhus have been considerably reduced in order somewhat to redress the balance.

## ITALY

#### Country-wide Season Tickets

Special tourist season tickets, available over the whole system, have recently been introduced by the Italian State Railways, at the following fares:

Validity	First class	Second class	Third class
6 days ...	£ 3 18 10	£ 2 15 10	£ 1 12 10
15 days ...	£ 8 14 0	£ 5 18 3	£ 3 9 0
30 days ...	£ 14 15 6	£ 10 3 7	£ 5 18 3

The State Railways system, including the lines in Sicily and Sardinia, is over 10,000 miles in extent. Thus, one may travel first class for a whole month at the rate of 3 miles a penny. For all but the shortest journeys, these season tickets constitute the cheapest form of travel in Italy. It is no longer necessary to calculate the cost of tours according

to individual requirements; all a traveller has to do, to estimate his fares, is to add the return fare from London to a frontier station to the cost of a season ticket in Italy.

## JUGOSLAVIA

#### State Railways Finances

The State Railways receipts during 1935 compared with those of previous years are as follow (figures in million dinar):—

Year	1931	1933	1934	1935
Earnings...	2,244	1,865	1,907	1,926

There was thus an increase of 19 million dinar as compared with 1934 and a greater improvement upon 1933, but the shortage as compared with 1931 is still very marked. Passenger earnings were, however, the lowest in recent years, 472 millions as against 502 millions in 1934; goods receipts meanwhile rose from 1,388 to 1,438 million dinar.

## IRAQ

#### Iraqi Views on New Agreement

The railway agreement between the Governments of Great Britain and Iraq [referred to in detail in our issue of May 15.—Ed. R.G.] came up for discussion in the Chamber of Deputies on Thursday, April 9, 1936. A number of the deputies criticised the new settlement as not being in the true interests of the country, which was bound by its provisions for a period of 20 years. The Prime Minister, Yasin Pasha, defended the policy of the Government in negotiating the settlement, which, in his opinion, was much more favourable to Iraq than those previously envisaged. In regard to the British officials to be employed in accordance with the agreement, His Excellency said they would be considered as Iraqi Government officials responsible to that Government in the same way as other foreigners in the service. The measure was passed by 65 votes to 3.

Following the approval of the agreement in the Chamber of Deputies, the Senate, on Monday, April 13, registered its approval of the measure, which was duly adopted after severe criticism by a small number of senators.

## CHINA

#### Shanghai-Wuhu Through Service

As previously anticipated in these columns, a through train service between Shanghai and Wuhu—passing just outside Nanking *en route*—was inaugurated on April 1. For the moment there will be only one through passenger train each way daily. The Shanghai-Nanking main line is followed as far as the latter city, whence the west-bound train passes over the new spur line outside the city to the recently opened Nanking-Wuhu section of the

Kiangnan Railway, both railway administrations sharing in this enterprise.

#### Peiping-Liaoning (Mukden) Railway

An accelerated train service between Peiping and Tientsin will begin on June 1, reducing the time between the two cities from 2 hr. 8 min. to 1 hr. 50 min.

#### Soochow-Kashing Chord Line

This line should have been ready for opening by April 1, but financial reasons have delayed its completion. At the moment platelaying is in hand from the Kashing end. A good deal of ballasting has still to be done on the full length. It will be several months before the work is completed.

#### Hunan-Kweichow Railway

Two routes are under investigation for this line as an extension of the Chekiang-Kiangsi Railway. One route would commence near the Canton-Hankow Railway south of Changsha, at a place called Siangtan, proceeding via Siangsiang, Shaoyang, Wukeng, Hungkiang and Chihkiang, in western Hunan, and on to Kweichow, the provincial capital of Kweichow. The alternative route is from Changsha, the provincial capital of Hunan, over the Siang River and through Ningsiang, Anhua, Hsinhua, Shupu, Shenki, and Mayang to Kweichow, keeping slightly to the north of the former route almost throughout.

## MANCHUKUO

#### South Manchuria Railway

The South Manchuria Railways' gross earnings for the statutory year ended March 31, 1936, were Y. 136,539,732 (£7,964,818), an increase of Y. 5,514,356 (£321,670) or 4.04 per cent. as compared with last year. The total is the highest on record.

The S.M.R. has appropriated Y.1,000,000 for the improvement of the track in the main line which, when completed, will permit a considerable acceleration of the service between Dairen and Harbin, the journey between the two points being reduced to 12 hours. It will take about three years to complete the work.

Early in May the South Manchuria Railway Company will assume the management of the three Korean ports of Rashin, Seishin, and Yuki by agreement between Manchukuo and Korea. The S.M.R. will then have the management of the South Manchuria Railway, the Manchukuo State Railways, part of the Korean Railways, and the three Korean ports mentioned; the last-named were constructed by the S.M.R. The unification of the railways and ports under one control will facilitate traffic operation and enable improvements to be effected in the through traffic arrangements with Japan, the routes via the three ports being the shortest between northern Manchukuo and Japan.

# BRITISH RAILWAY STATISTICS

*"The Railway Gazette" monthly table for Jan., 1936, as compared with Jan., 1935, compiled from the Ministry of Transport Statement No. 194*

Description	Great Britain*	G.W.R.	L.N.E.R.	L.M.S.R.	S.R.
<b>PASSENGER TRAIN TRAFFIC—</b>					
Number of pass. journeys (ex. season ticket holders)	102,738,241	6,846,574	14,105,367	22,546,217	17,289,049
Increase (+) or decrease (—)	+ 4,881,315	+ 24,406	+ 621,255	+ 476,347	+ 306,408
Passenger receipts (excluding season ticket holders)	£3,286,922	£417,013	£623,433	£952,551	£705,850
Increase (+) or decrease (—)	+ £151,218	+ £23,537	+ £28,219	+ £37,417	+ £21,080
Season ticket receipts	£1,001,938	£67,074	£191,437	£265,485	£316,487
Increase (+) or decrease (—)	— £15,776	— £2,718	— £10,054	— £6,148	— £2,704
Parcels and misc. traffic receipts (excluding parcels post)	£974,044	£179,402	£307,428	£360,191	£111,621
Increase (+) or decrease (—)	— £9,389	— £1,559	+ £4,178	— £8,438	— £2,441
<b>FREIGHT TRAIN TRAFFIC—</b>					
Freight traffic (tons) (excluding free-hauled)	22,851,282	5,308,594	10,407,593	10,598,666	1,402,295
Increase (+) or decrease (—)	+ 1,062,675	+ 52,121	+ 631,124	+ 721,126	+ 81,387
Net ton-miles (excluding free-hauled)	1,274,042,102	237,996,462	426,239,092	519,093,540	54,978,376
Increase (+) or decrease (—)	+ 75,347,989	+ 14,938,148	+ 20,465,186	+ 37,409,654	+ 1,762,866
Average length of haul (miles) (excluding free-hauled)	55.75	44.83	40.95	48.98	39.21
Increase (+) or decrease (—)	+ 0.74	+ 2.40	— 0.56	+ 0.21	— 1.08
Freight traffic receipts	£6,956,962	£1,175,000	£2,313,000	£2,867,000	£378,237
Increase (+) or decrease (—)	+ £318,055	+ £52,500	+ £110,300	+ £130,000	+ £18,337
Receipts per ton-mile	1.311d.	1.19d.	1.30d.	1.33d.	1.65d.
Increase (+) or decrease (—)	— 0.018d.	— 0.02d.	—	— 0.04d.	— 0.03d.
Freight train loads: Average train-load (tons)	130.04	134.67	136.50	127.83	105.88
Increase (+) or decrease (—)	+ 4.30	+ 1.99	+ 3.89	+ 5.88	+ 3.28
Net ton-miles—					
Per train engine-hour	902.46	976.25	1,001.41	829.12	785.89
Increase (+) or decrease (—)	— 81.76	— 99.71	— 30.14	— 107.76	— 30.25
Per shunting-hour	842.05	789.35	950.51	845.65	552.87
Per total engine-hour	435.60	436.45	487.65	418.65	324.55
Net ton-miles per route-mile per working day	2,788	2,779	2,965	3,268	1,181
Increase (+) or decrease (—)	+ 159	+ 159	+ 146	+ 210	+ 57
Wagon-miles. Total	356,145,859	65,424,932	122,742,826	148,850,241	17,129,333
Increase (+) or decrease (—)	+ 15,183,585	+ 3,976,458	+ 4,987,621	+ 5,791,173	+ 578,004
Percentage of loaded to total	65.66	66.89	63.15	67.29	65.07
Wagons per train. Total	34.36	34.49	35.07	34.34	30.96
Increase (+) or decrease (—)	+ 0.70	+ 0.72	+ 0.70	+ 0.70	+ 0.75
Loaded	22.56	23.07	22.15	23.11	20.15
Empty	11.80	11.42	12.92	11.23	10.81
Train-miles. Coaching—Per train-hour	15.03	14.02	14.19	14.25	17.69
Per engine-hour	12.04	11.16	11.01	10.89	14.61
Train-miles. Freight—Per train-hour	8.13	8.78	8.59	7.46	9.23
Per engine-hour	3.35	3.26	3.60	3.27	3.02
Engine-miles. Total	46,008,146	7,402,844	12,590,426	17,039,380	6,060,203
Increase (+) or decrease (—)	+ 1,421,021	+ 307,296	+ 318,055	+ 609,554	+ 198,429
<b>Mileage run by engines. Total train-miles—</b>					
Coaching	22,462,305	3,126,644	5,117,591	7,135,888	4,403,612
Freight	10,363,643	1,896,759	3,499,887	4,334,581	553,235
Engine-hours in traffic. Total	5,163,863	887,880	1,507,248	2,065,053	504,281
Increase (+) or decrease (—)	+ 345,537	+ 60,470	+ 69,069	+ 198,536	+ 17,902
<b>Shunting-miles per 100 train-miles—</b>					
Coaching	7.52	6.89	6.60	8.22	8.59
Freight	77.19	85.26	70.87	74.91	100.83

Passenger Traffic Statistics: Number of journeys, receipts, and receipts per journey (excluding season ticket holders)—January, 1936

Subject	Great Britain	G.W.R.	L.N.E.R.	L.M.S.R.	S.R.	Cheshire Lines	Liverpool Overhead	L.P.T.B.†	Mersey
<b>Full fares—</b>									
Pass. journeys	35,046,616	687,319	1,207,796	1,483,074	2,789,093	17,405	180,508	27,788,025	80,810
Gross receipts	£852,833	£67,341	£108,753	£111,043	£173,547	£2,330	£1,817	£371,504	£1,392
Receipts per pass.	5.84d.	23.51d.	21.61d.	17.97d.	14.93d.	32.13d.	2.42d.	3.21d.	4.13d.
<b>Reduced fares—</b>									
Excursion and week-end—									
Pass. journeys	36,223,888	3,750,348	8,423,673	12,647,973	7,867,050	376,694	74,808	1,363,395	676,742
Gross receipts	£1,733,082	£269,751	£386,105	£616,534	£375,616	£17,578	£635	£28,788	£9,624
Receipts per pass. journey	11.48d.	17.26d.	11.00d.	11.70d.	11.46d.	11.20d.	2.04d.	5.07d.	3.41d.
<b>Workmen—</b>									
Pass. journeys	28,038,615	1,988,827	3,650,635	7,427,618	5,998,098	253,370	244,424	7,309,602	213,606
Gross receipts	£407,022	£29,234	£59,264	£118,764	£98,676	£4,287	£1,966	£81,454	£1,922
Receipts per pass. journey	3.48d.	3.53d.	3.90d.	3.84d.	3.95d.	4.06d.	1.93d.	2.67d.	2.16d.
<b>Other—</b>									
Pass. journeys	3,425,066	419,324	822,408	985,554	634,381	61,119	50,322	382,955	9,844
Gross receipts	£288,293	£49,802	£68,119	£103,046	£57,581	£3,869	£319	£3,294	£157
Receipts per pass. journey	20.20d.	28.50d.	19.88d.	25.09d.	21.78d.	15.19d.	1.52d.	2.06d.	3.83d.
<b>Total—</b>									
Pass. journeys	102,738,241	6,846,574	14,105,367	22,546,217	17,289,049	708,602	550,062	36,843,977	981,002
Gross receipts	£3,286,922	£417,013	£623,433	£952,551	£705,850	£28,076	£4,737	£485,040	£13,095
Receipts per pass.	7.68d.	14.62d.	10.61d.	10.14d.	9.80d.	9.51d.	2.07d.	3.16d.	3.20d.

\* All standard gauge railways

† Includes passengers originating on the railway undertakings, and on the Whitechapel and Bow Joint Railway

## THE FUNCTION OF THE TRADER

YESTERDAY Mr. H. W. Payne, Principal Assistant to the Chief Goods Manager, Great Western Railway, presented to the Annual Congress of the Institute of Transport, now being held in Birmingham, a paper on "The Function of the Trader in an Efficient System of Transport." By implication Mr. Payne assumed that the existing transport in Great Britain was not entirely efficient, and he therefore proceeded to examine the present state of affairs in order to see how far the trader was responsible for such inefficiency, and what steps were in his power to secure improvement.

From the very early days of organised transport, Mr. Payne showed, one of the main interests of the trader had been to demand lower rates, and he quoted, by way of illustration, the following letter, dated March 1, 1817, as the earliest example within his knowledge:—

I saw Mr. Partridge lately who complained of the high rate of tonnage on the rail road for pig iron and said that he should now send 200 tons by water on that account which otherwise he should have sent by the rail road. I would therefore wish you at the next committee meeting to request the gentlemen who attend to consider whether it might not be for the interests of the company to make some reduction of the rate of tonnage on such goods.

The development of transport in the Victorian era was accompanied by measures of statutory control of railway charges and conditions of carriage, designed to give expression (subject to necessary safeguards) to the needs of the trader. The Railway Clauses Consolidation Act of 1845, which could be regarded as a general summation of the numerous individual Acts authorising the making of railways prior to that date, contained two important provisions: first, empowering the railways to make "such reasonable charges as they may from time to time determine," not exceeding the tolls authorised by the private statutes; secondly, directing them to accommodate their rates to the circumstances of the traffic. Here at an early stage was consultation with the trader made law.

There were no records, said Mr. Payne, of active participation by trade in the use of this first "charter of liberty," but between 1845 and 1854 the evolution of new commerce and its growing dependence upon the railways for success threw into prominence the further desirability of an expression of opinion from Parliament. In 1854 was passed the Railway and Canal Traffic Act, which required the companies to "afford all reasonable facilities for the receiving, forwarding and delivery of traffic" and prohibited "undue or unreasonable preference or prejudice in favour of or against any particular person or company or any particular description of traffic." The outcome of dissatisfaction with existing legislation brought about the appointment of a Joint Select Committee of the two Houses of Parliament, which recommended the creation of a new tribunal to be known as the Railway and Canal Commissioners, whose duty it should be to enforce the Railway and Canal Traffic Act of 1854. In addition, this committee recommended a new and uniform classification of goods for compulsory adoption by the railways. The Court of the Railway and Canal Commissioners was appointed by the subsequent Act of 1873—The Regulation of Railways Act—but the classification did not then become law. One further step in recognition of the trader's right to obtain for himself the current rates of carriage on his own and any other commodity if he so elected, was the ordinance that railway rate-books should be open for examination at each station; the possibility of undue preference was thus rendered more remote.

Charges for terminal services were not an integral part of the original charging authority in the earlier Acts, as

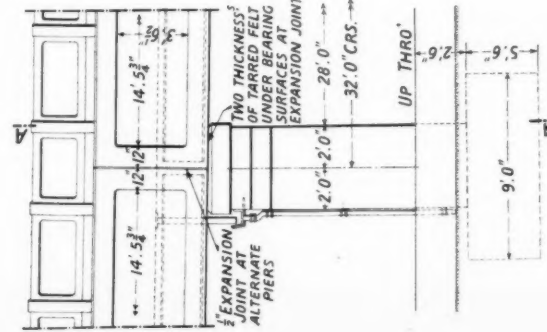
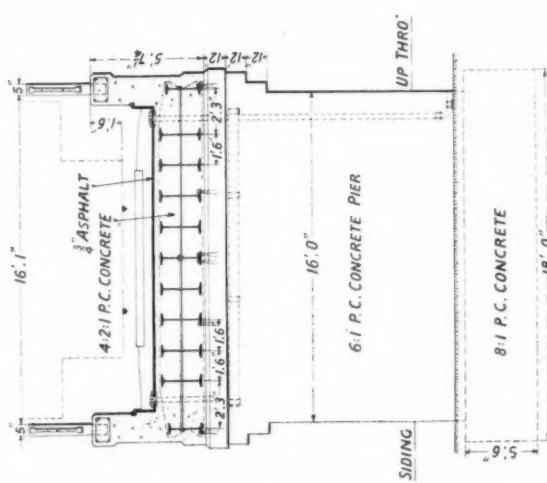
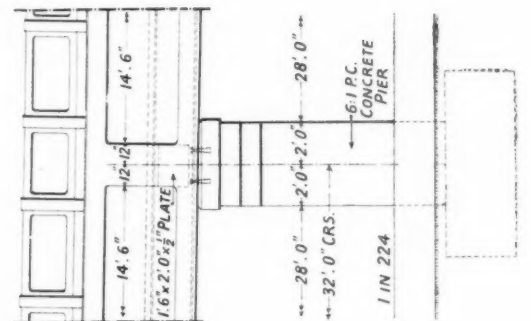
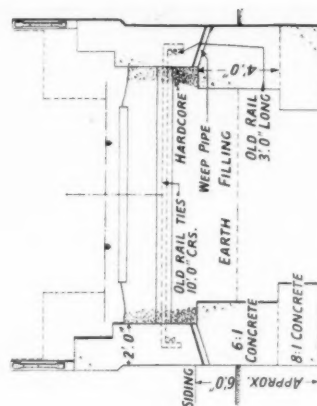
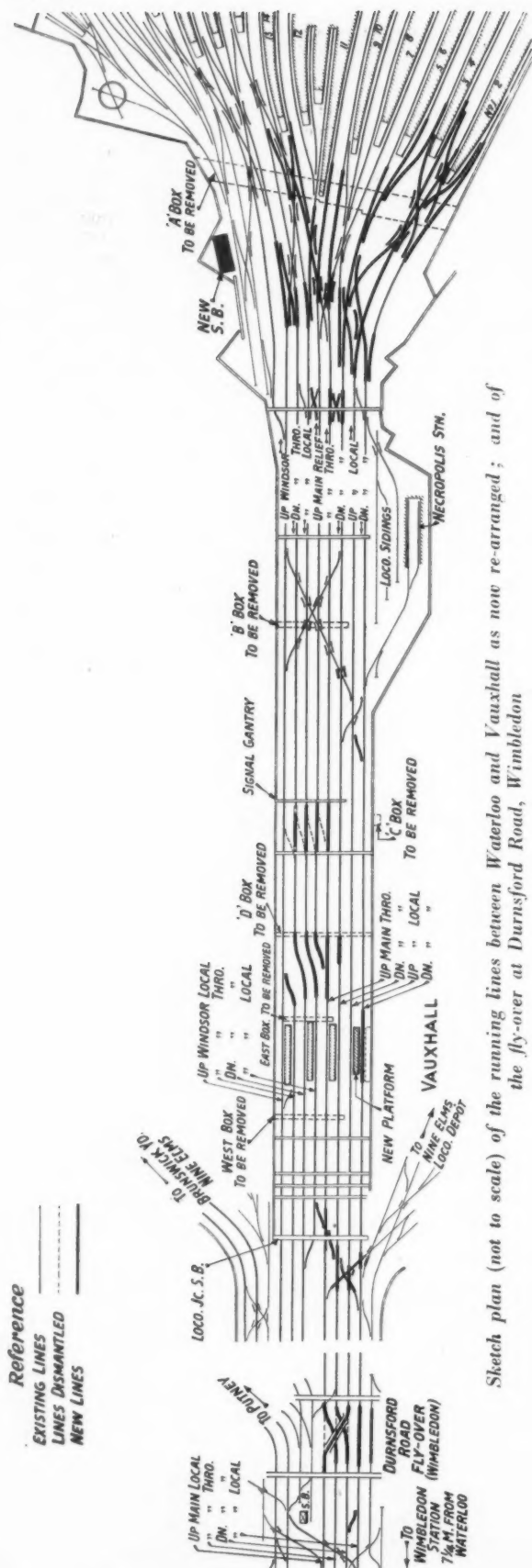
these confined themselves to a charge first for tolls for the use of tracks, then for the provision of haulage power, and thirdly for the conveyance which included the supply of the vehicle. Terminal charges caused protests to be made, mainly on the allegation that they caused the maximum permissible charging powers to be exceeded. A Select Committee of the House of Commons was appointed in 1881 to enquire into the working of the Act of 1873, and also into the general relations between railways and traders. This committee recommended, *inter alia*, that a case had been made out for the charging for terminal services with particular regard to the financial expenditure on the part of the railway companies in providing stations and personnel for the convenient assembly and handling of traffic; and that a universal classification of merchandise of every description be adopted by all railways. After the unsuccessful promotion of separate railway company Bills in 1884, the Government took the matter in hand and passed an Act in 1888 to establish standards of classification and charging. The Board of Trade asked for the views of the traders upon the classification and rates schedules, and then "the function of the trader in an efficient system of transport," in a negative sense, became evident, for 1,500 persons sent in over 4,000 objections or approximately  $2\frac{1}{2}$  objections a person. The Board of Trade became disillusioned as to the merits of the traders' objections and expressed itself thus: "Evidence was abundantly forthcoming to show that the chief object of a large section of the traders was not to revise statutory powers but to obtain a reduction in actual rates." The following characteristic letter was quoted in the report:—

What we want is to have our fish carried at half present rates. We don't care a — whether it pays the railways or not. Railways ought to be made to carry for the good of the country or they should be taken over by the Government. This is what all traders want and mean to try and get.

Eventually the Board of Trade issued its version of a fair and reasonable classification and a rates structure which included terminal charges. These were legalised by the Rates and Charges Confirmation Acts of 1891-2 after a full investigation by a Joint Committee of both Houses by and with representations from the railway companies and the trading community. On the publication of the new rates an outcry followed from traders called upon to pay higher rates—those required to pay lower rates remained mute. The principles of satisfactory railway function with all their implications are nobody's business provided the charge for services grows less and less! Mr. Payne then traced subsequent legislation, and saw in the resultant actions of traders the same general tendency. The rise of road transport of freight was but a recent manifestation of the desire of traders to satisfy their individual needs at low cost without reference to the stability of the transport industry's structure.

Mr. Payne concluded that he could not separate the trader from an efficient system of transport. They were co-existent and dependent, and there could be no trade without efficient transport; no transport without trade. The degree of development of the one was the coefficient of the other. He was of the opinion that, having allowed the body of transport to become corrupted by false doctrines, the trader must himself purge it. The trader's self-interest was paramount but he was living in a fool's paradise created by indifference to consequences. The author therefore submitted that transport should constitute an efficient service to the community, and that the trader's function was to demand nothing less and to accept the obligations which that demand carried with it.





### Elevations and cross section of approach spans and piers

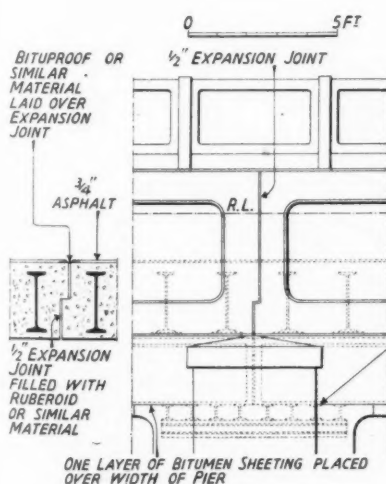
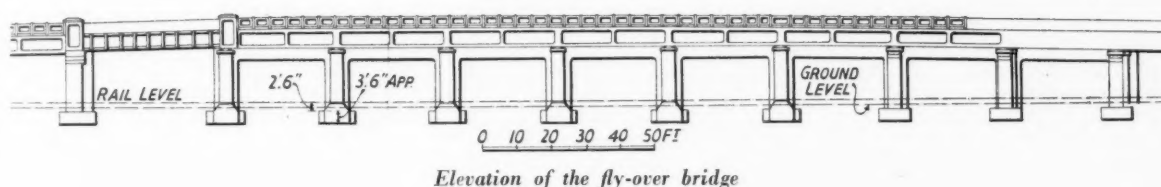
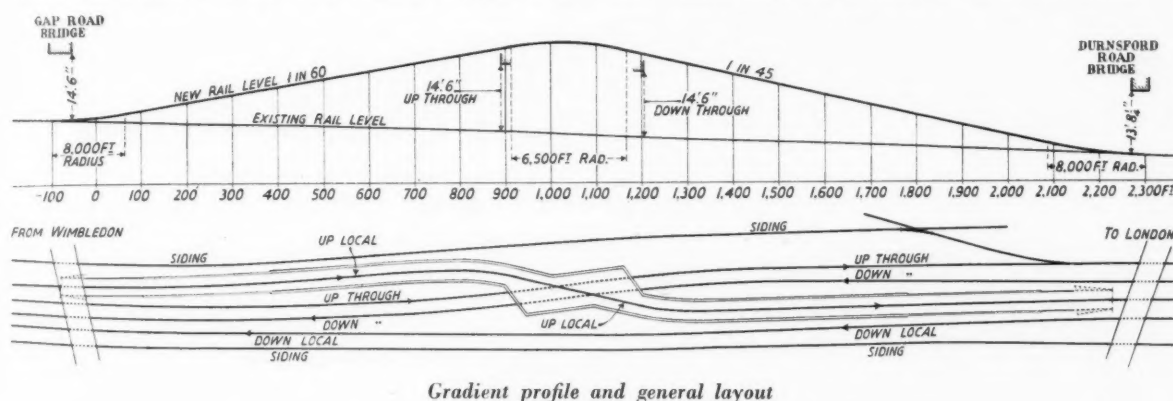
## IMPROVING THE APPROACH TO WATERLOO STATION

*First stage of £500,000 scheme brought into use*

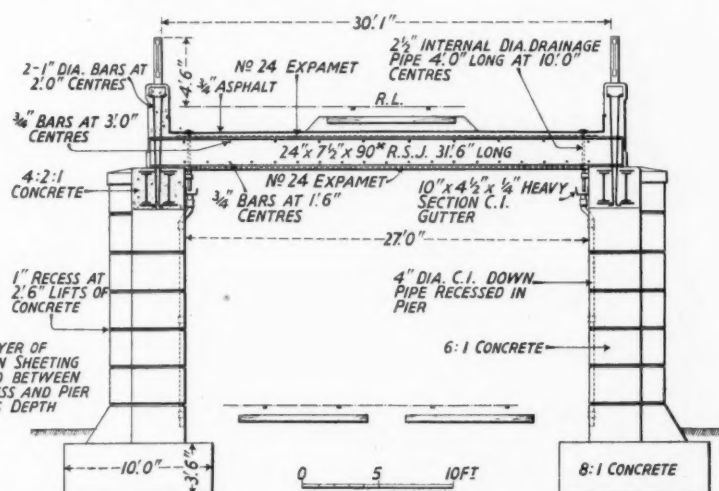
**L**AST Sunday, May 17, the Southern Railway brought into operation the first section of the important new works of which a brief description was given in our issue of January 11, 1935, and which are designed to improve the facilities for the ever increasing traffic using Waterloo station, and to which we refer editorially on page 988. The main feature of the new works is the replacement of the existing signalling by up-to-date power and colour-light signalling and the re-arrangement of the lines from Wimbledon into Waterloo.

Until last Sunday on the main western line the order

of the tracks between Vauxhall and Wimbledon, from south to north was: down local, down through, up through, up local. Between Waterloo and Vauxhall there was an additional up line, known as the up relief, which turned out of the up through, and the order of the tracks on this section was: down local, down through, up relief, up through, up local. Under the old system of working, up local electric trains, in approaching the electrified platform lines on the south side at Waterloo, had to cross the up relief, up through and down through lines, thus fouling the route of all main line trains.



Expansion joint



Cross section of the fly-over bridge

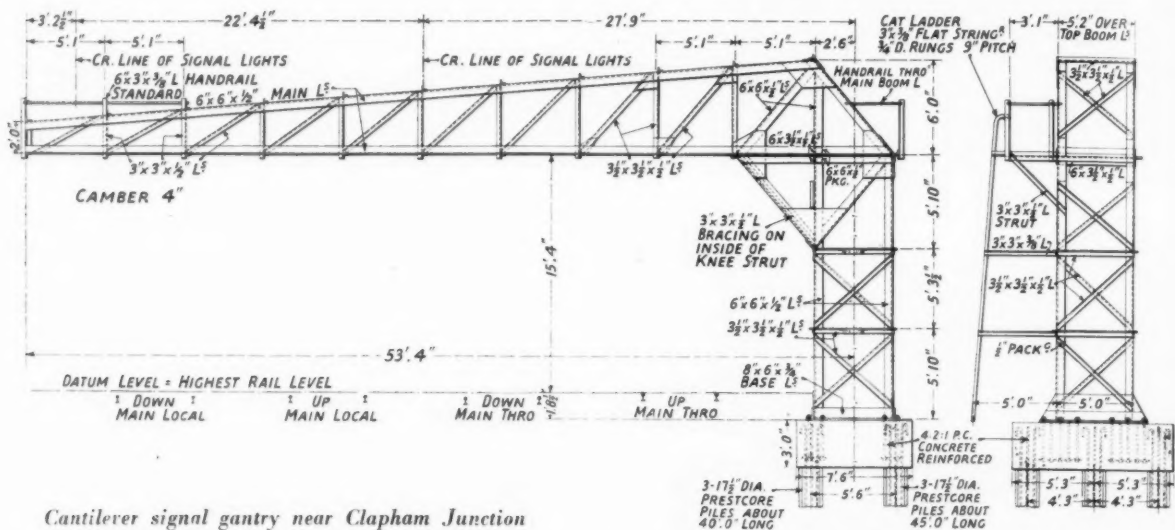
### NEW FLY-OVER LINE AT WIMBLEDON

The construction of the fly-over just east of Wimbledon has resulted in bringing the up local line next to the down local, so that, as shown on page 998, a train approaching on the up local line can now gain any of the electrified platforms without crossing either the up or down through lines, thus avoiding the delays in working which previously arose.

A complete remodelling of the permanent way at Waterloo has been undertaken, first to provide for the altered connections consequent upon the reversal of the lines, and secondly to introduce additional facilities for the working of traffic in and out of the station. The up local line is now connected directly to platforms 1 to 9, all of which are now electrified. Formerly electric trains could be dealt with only in platforms 1 to 6 inclusive.

other trains to Waterloo or Clapham Junction where they changed into their normal trains. Here again the work was notable for the speed with which it was carried out and the difficulties due to the constricted area available. New waiting rooms with a standard Southern Railway island platform type of umbrella roof, together with a new stair approach from the subway are being constructed. The platform walling is of the company's standard precast concrete sections manufactured at Exmouth Junction depot.

At Waterloo the permanent way connections approaching platforms 1 to 6 have had to be relaid in new positions, and this necessitated the closing of platforms 1 to 3 for 10 days preceding the change-over. In addition platforms 4, 5 and 6 were closed from 6 p.m. on Friday, May 15, and all the lines between Waterloo and Surbiton from



Cantilever signal gantry near Clapham Junction

The principal engineering works besides the signalling have been the construction of the new fly-over at Wimbledon, a new island platform at Vauxhall to serve the up and down local lines, the alteration of the island platform at Earlsfield between the former down and up main lines, which was very seldom used, so as to make it suitable for dealing with up local traffic, and the re-arrangement of the permanent way connections.

The construction of the fly-over, which is of steel and concrete, is shown in the accompanying drawings—from which it will be seen that, after short approaches on filling between retaining walls, there is a deck of rolled steel joists encased in concrete and carried on concrete piers. The permanent way is laid in ballast on the concrete deck and the whole job has been specially designed for ease and economy of maintenance. The carrying out of the work was complicated by the constricted limits in which it had to be done. It lay between lines carrying a heavy and fast service of trains, and conveyance to and from the site of spoil and materials, including 8,000 cu. yd. of concrete and 850 tons of steel, required elaborate organisation. The construction of the fly-over was begun on September 9 last year and was completed well before the date on which it was brought into operation.

The new island platform at Vauxhall necessitated the demolition of the former down local platform. During the period of the work, when there was no platform available for down local trains, special arrangements were made whereby down local passengers were conveyed by

1 a.m. to 7 a.m. on Sunday, May 17. During this time the final alterations to the tracks were completed and the change-over from manually operated mechanical to a power operated colour light signalling was made. While the line was closed between Waterloo and Surbiton, trains to and from Kingston, Teddington and Twickenham were cancelled but arrangements were made between the Southern Railway and the London Passenger Transport Board for bus services to operate between the points affected and passengers were thus subjected to a minimum of inconvenience. The 1.10 a.m. Southampton to Waterloo train and the 1.30 a.m. Waterloo to Salisbury arrived at and departed from Victoria, from which terminus the newspaper trains usually leaving Waterloo also departed.

In connection with the signalling, which will be described next week, notable structural works were the gantries required for carrying the colour light signals so that they should be adjacent to the lines to which they applied. Near Clapham Junction there is a remarkable example, illustrated on this page, from which it will be seen that to carry two signals a large lattice girder cantilever measuring some 53 ft. has had to be constructed with a piled reinforced concrete foundation. New signal boxes have been built at Hampton Court Junction, Surbiton, where the station is now in course of rebuilding and enlargement, and at Waterloo. The latter will replace three existing boxes, but will not be brought into operation until after the summer train services, when we hope to publish a detailed description of it.





*General view of the fly-over; chimneys of the Southern Railway's Durnsford Road power station in the background*

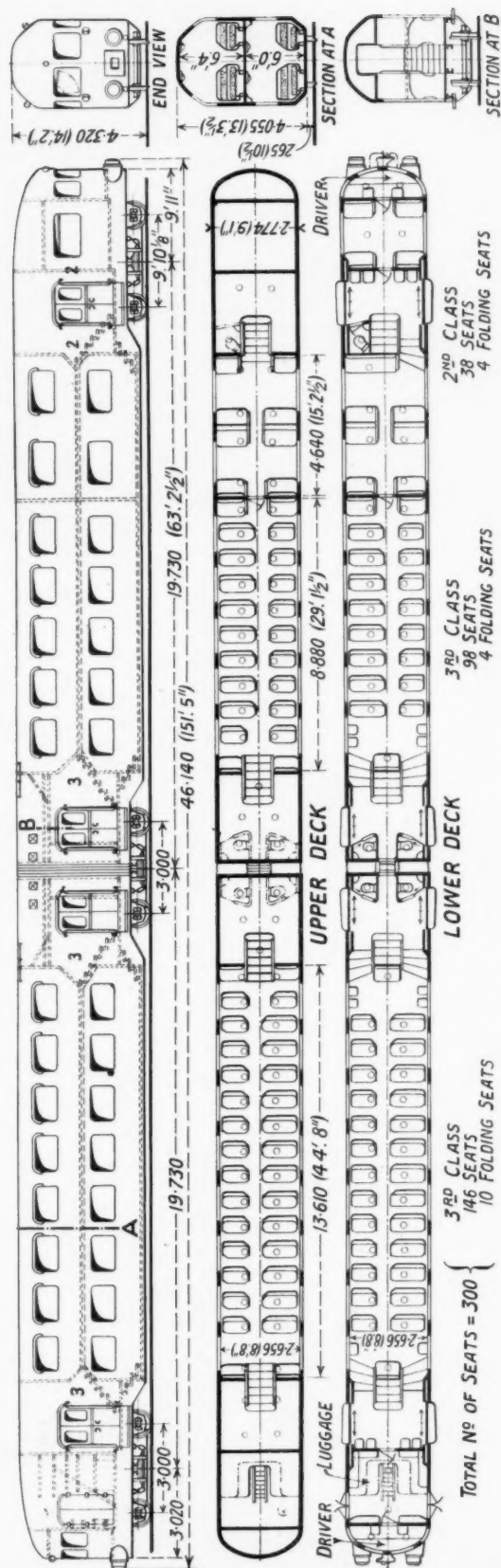


*Relaying connections at the approach to platforms 1-6 at Waterloo*

**IMPROVING THE APPROACH TO WATERLOO, SOUTHERN RAILWAY**



General view of streamlined locomotive and train

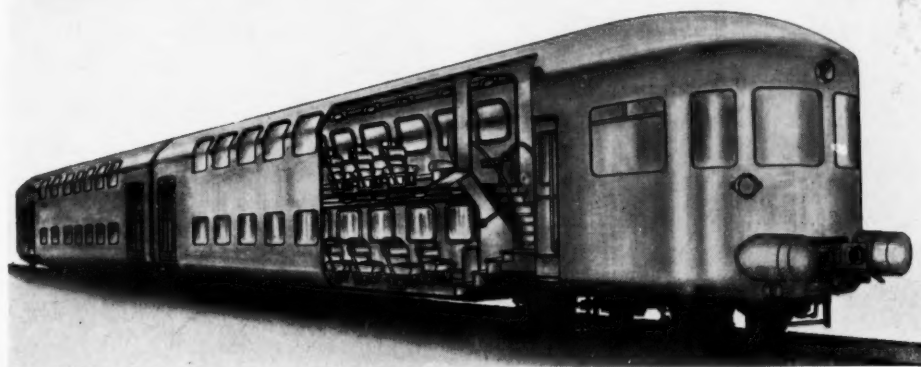


Elevation and plan views of the double-deck articulated carriages

STREAMLINED DOUBLE-DECK TRAINS, LÜBECK-BÜCHEN RAILWAY

## STREAMLINED DOUBLE-DECK TRAINS, LÜBECK-BÜCHEN RAILWAY

*These trains, which have been in service since early in April, are reported to have already become very popular with the travelling public*



WE illustrated and briefly described on pages 212-213 of THE RAILWAY GAZETTE for January 31 last a new 2-4-2 type streamlined tank locomotive built by Henschel & Sohn A.G. of Kassel for service on the Lübeck-Büchen Railway. The locomotive is of the high speed type, with four coupled wheels 6 ft. 6 in. in dia., and cylinders 15½ in. dia. by 26 in. stroke. It was designed for a maximum speed of 120 km. (74.6 m.) p.h. in either direction of running, hauling a train of two double-deck articulated coaches. Loss of time in uncoupling and running round at terminals is avoided by the provision of a driver's compartment at the front of the leading coach when the train is running with the locomotive at the rear; electric remote control apparatus supplied by the firm of H. Becker, Berlin, is used for this purpose. The trains, two in number, were placed in service on April 7, and since that date have been working continuously and satisfactorily.

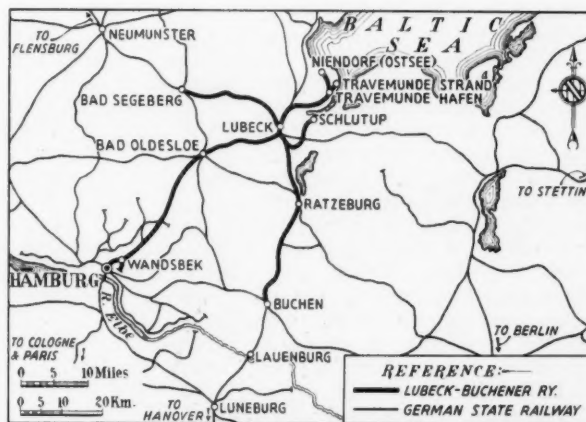
By courtesy of the Linke-Hofmann-Werke A.G. of Breslau, we are able to supplement our previous article (which appeared before the completion of the articulated coaches) by some further details prepared by Dipl. Ing. v. Waldstätten; and illustrations showing their construction. The double deck coach set is mounted on three bogies as shown in some of the accompanying illustrations. Although the vehicles provide seating accommodation for second and third class passengers, one above the other, the total height of the coach is but little more than that of one of normal design. Full advantage has been taken of the loading gauge dimensions, and, as is usual and necessary in this form of construction, the floor of the coach between the bogies is lowered to within a short distance of the rails, as in the case of well wagons. The entrance vestibules at the ends and in the centre of the coaches give access to two staircases leading to the lower floor, and a wide staircase to the upper floor. The seating accommodation is for 258 third class and 42 second class passengers.

The inside fittings were executed from the designs of Frau Liesel Bertsch-Kampferseck, of Berlin-Pichelswerder. The third class has leather covered seats with flap seat backs, enabling the passengers always to face in the direction of travel. The seats are covered with red-brown leather, and the walls wainscotted with light coloured German oak; the ceilings are lacquered in ivory colour

and the floor covered with grey linoleum. The second class has seats covered with orange coloured plush, and here the seat backs are adjustable to any desired inclination. Movable down-filled pillows are fitted to the seat backs. The walls are wainscotted with dull polished Caucasian walnut and the ceiling lined with clear coloured mountain maple wood; as in the third class, the floor is covered with grey linoleum. All the trimmings of both the second and third class compartments are made of dull nickel-plated light metal, oxidised by electricity. There is ample headroom in both compartments, and the large windows and general arrangement impart a particularly convincing impression of space.

The windows are all of fixed pattern, without any means of opening, and for ventilation and warmth a central air heating and cooling device is fitted above the middle entrance. There is a luggage compartment at one end of the coach, and an attendant is present in each section of the train to receive the small luggage of travellers and look after their comfort.

The framework of the coach is built up entirely by welding, and consists of a high class of steel with the merit of great strength combined with lightness. Compressed air brakes with automatic load braking are fitted,



Sketch map of the Lübeck-Büchen Railway





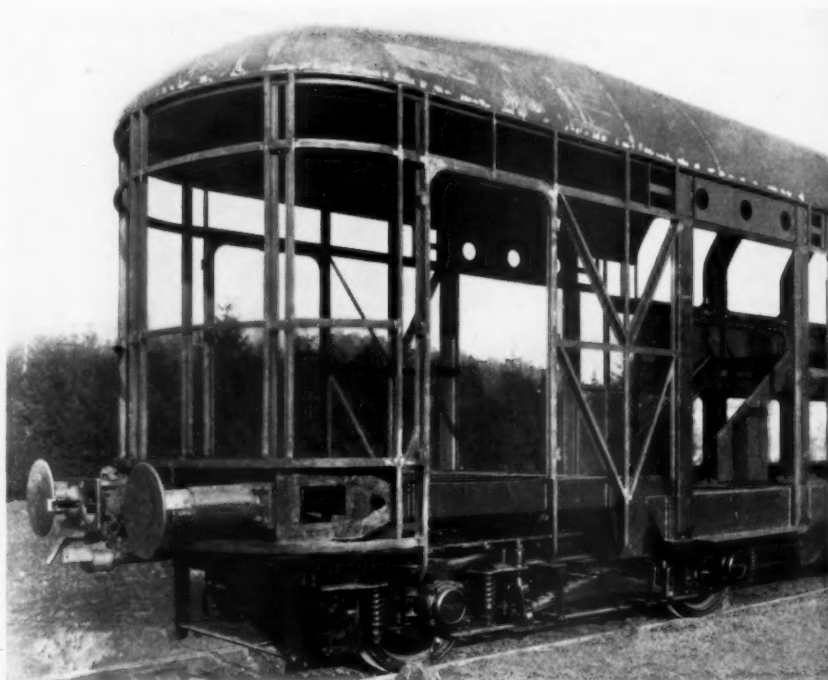
*General view of the construction of the combined coaches, showing details of body framing floor, sides, and roofing*



*View from entrance platform of double deck coach showing centre staircase to upper deck and descent on each side to lower deck*

supplied by the Knorr-Bremse A.G., Berlin, and the automatic central couplings are of the Schaku type manufactured and supplied by Scharfenberg Kupplung A.G., Berlin. The bogies are fitted with roller-bearing axleboxes supplied by the firm of Kugelfischer of Schweinfurt. Some of the coaches were built by the Waggon-und-Maschinenbau A.G. (Wumag) of Görlitz, to whom we are also indebted for certain of the illustrations reproduced herewith.

As was stated in our earlier article, the new trains may be regarded as a logical extension of principles applied in the construction of the first steam railcar for the Lübeck-Büchen Railway, which began its trials on January 1, 1934 (see THE RAILWAY GAZETTE of June 1, 1934, page 964), and the 120-h.p. steam-motor locomotive built last year for shunting service. By its latest innovation, the Lübeck-Büchen Railway Company is again demonstrating its continued enterprise in the development of steam traction.



*Constructional details of coach end showing Schaku automatic coupler and bogie fitted with Kugelfischer roller-bearing axleboxes*

## A NEW UNIVERSAL GRINDING MACHINE

*Claimed to be the largest of its kind in the world*



At the invitation of British Timken Limited, a party of engineers, press representatives, and others visited the works of the firm in Birmingham on Monday last. The visitors were conveyed in a special saloon attached to the 9.15 a.m. train from Euston to Birmingham, and on arrival at the works an opportunity was given for seeing the machine in operation and having its various details explained; the party was later entertained to lunch at the Midland Hotel, Birmingham.

The machine, of which an illustration is reproduced, was built by the Churchill Machine Tool Co. Ltd. of Manchester, the details of design having been worked out by this firm and British Timken Limited in collaboration. It is claimed to be the largest universal grinding machine in the world and embodies new features decided upon in consultation which took place during a period of over two years between the technical engineers of both firms.

The machine is capable of grinding internal and external surfaces, spherical end faces and ball tracks, and many of the principles followed are those previously adopted in standardised Churchill grinding machines. Although at present the machine is working with experimental grinding wheels it is stated that even with these the reduction in grinding time, as compared with machines hitherto used, amounts to as much as 75 per cent. Orders from the Continent have already been received for roller bearings of the single row type having a diameter of 5 ft. 6 in. and weighing over 16 cwt. each, as well as for larger and heavier bearings of the four row type weighing as much as 2½ tons, these being required for heavy rolling mills. British firms have also placed orders for bearings of large diameter for other purposes.

The electrical equipment is all designed for use on 440 volts 3 phase 50 cycle and consists of squirrel cage motors throughout, controlled by push button operated contactor starting gear. The workhead is driven by a 10 h.p. motor

at speeds varying from 470 to 1,460 r.p.m. giving a range of eight spindle speeds through change pulleys of from 5 to 31 r.p.m. The wheelhead is driven by a 35 h.p. constant speed motor at 1,475 r.p.m. giving two spindle speeds with change pulleys of 875 r.p.m. and 1,167 r.p.m. to suit grinding wheels of 24 in. and 18 in. diameter, giving surface speeds of 5,500 ft. a minute.

The hydraulic traverse to the wheelhead and workhead and the oscillating motion to the workhead are each operated by a 5 h.p. motor at 1,430 r.p.m. The gear for 35 and 10 h.p. motors is contained in one multi-motor control panel adjacent to the machine and controlled by a separate station mounted on the body of the machine, these having seven push buttons, namely, five for the workhead and two for the wheelhead motor.

The weight of the machine is 45 tons and its height from floor to wheel centre 6 ft. 8 in.; the faceplate has a maximum diameter of 5 ft. 10 in. The grinding wheels are 4 in. wide on the face, and wheels of 24 in. and 18 in. diameter may be used. The workhead, which is driven at the rear end by a large diameter texrope pulley, is detachable, as is also the wheelhead, which enables the machine to be raised for a larger swing if necessary at some later date. The wheelhead slide is operated hydraulically with 6 ft. of traverse and with speeds of from 3 in. to 36 in. a minute. It may also be mentioned that the basis of time for removing metal is 1 cu. in. a minute, and a feature in which those who inspected the machine were particularly interested is that a meter fitted in the wheelhead motor circuit indicates constantly the amount of current flowing. If the grinding wheel becomes glazed or clogged with metal this meter at once indicates the fact by reason of the extra power required to drive the wheel in such a condition.

The electric motors were supplied by Metropolitan-Vickers Electric Co. Ltd. and the control gear by Brookhirst Switchgear Limited.

## NEW STREAMLINED LOCOMOTIVE AND CENTENARY TRAIN, SOUTH AUSTRALIAN RAILWAYS

*This, the first streamlined locomotive in Australia, is built of 95 per cent. Australian material and is replete with a locally-cast steel frame and up-to-date equipment of all kinds. The colour scheme throughout the engine and train is hawthorn green and silver or cream*



**T**HE South Australian Railways administration has made a notable addition to its fleet of passenger vehicles by putting into service recently a complete centenary train, to mark the centenary year of the State and to provide up-to-date passenger accommodation. The train is composed of five end-loading passenger cars, a buffet car, and a 60-ft. bogie brake van, headed by a new streamlined 4-6-2 locomotive, which was designed and built at the main State Railways workshops at Islington. Named *Sir Winston Dugan*, after the Governor of South Australia, it will be on view at the Adelaide Centennial Exhibition, for approximately two months, prior to its being used with the centenary train for excursions to country towns. It is of practically 100 per cent. Australian material, only about 5 per cent. being imported, largely boiler plate. The locomotive with tender in working order weighs 140 tons, and is the first of ten of its kind which will be constructed to cater for lighter passenger loads than hauled by the present heavy engines: work has already begun on two more of them which, it is expected, will be turned out within the next few months. The present locomotive will later be used on the East-West Express when the Red Hill—Port Augusta line is completed and will run on the Adelaide—Port Pirie section of this line.

A feature of the mechanical equipment is the Baker valve gear, which is new to Australia. The sliding blocks and links of the old type of valve gear are replaced by simple pin joints, which facilitate lubrication and lessen maintenance costs. The driving journals have rotary bush bearings and are grease lubricated, as are practically all the engine bearings so that most of the lubricating can be done in running sheds, instead of by the driver during a run. The engine bogie and the tender are carried on roller bearings. An outstanding achievement in workmanship is the cast steel frame, a work not before attempted in Australia. The suppliers of these frames are to be congratulated on their workmanship, which compares favourably with those previously obtained overseas. The driving wheels are 5 ft. 6 in. in diameter; the tender carries nine tons of coal and 5,300 gallons of water.

The streamlining is given additional effect by a slightly curved silvered ventilation grille at the front of the smoke-box. Smoke deflectors throw the smoke clear of the cab and so do not obstruct the view, and also keep the smoke away from the passenger cars. The chimney has almost entirely disappeared, and built into it is a powerful headlight from which a curved wing at the back adds to the locomotive's appearance of speed. A winged crest, bearing the monogram of the South Australian Railways, is carried on the front of the engine. The cab is very roomy, and the firedoor is opened and shut by the fireman's foot pressure on a control. An air chime whistle has been fitted. The colour scheme of the engine is hawthorn green and silver, and the streamlining is enhanced by silver bands, curving down the sides of the engine and tender. All exterior boiler fittings have, as far as possible, been eliminated, and the air compressor of the Westinghouse brake has been placed in a recess within the tender.

The passenger cars are existing stock which has had the interior completely redesigned and fitted up semi-compartment fashion, with dwarf partitions extending half-way to the roof. Nickel plated luggage racks set over the tops of these partitions provide ample luggage accommodation. Iced water fountains are provided and the cars are fitted with lavatory accommodation. Portable card tables are available. The ceiling has been redesigned and the maximum lighting provided. The rosewood finished panels harmonise well with the blue upholstery. The seats are well sprung and have arm rests.

The buffet car is a very popular innovation and was well patronised on the initial run to Victor Harbour, a seaside resort some 80 miles from Adelaide. The service has been built into an existing passenger car, which retains part of its seating accommodation at each end of the car. The cars are of the corridor type and enable passengers to partake of hot or cold drinks and refreshments of a general nature during the run. The up-to-date appointments throughout are an additional attraction for the travelling public. The exterior paintwork is hawthorn green, relieved with cream panels, and with the locomotive the whole train presents an attractive appearance.



## RAILWAY NEWS SECTION

### PERSONAL

Mr. T. H. Watermeyer, General Manager, South African Railways and Harbours, left Cape Town for Southampton on May 15.

Mr. E. W. Head, General Manager of the Ceylon Government Railways, has retired.

#### INSTITUTE OF TRANSPORT

Sir Alfred Read, Chairman and Managing Director of Coast Lines Limited, has been elected by the Council of the Institute as President for the year beginning October 1, 1936.

Among others elected to take office as Vice-Presidents are:—

Mr. E. C. Cox, C.B.E., M.V.O., Traffic Manager, Southern Railway.

Mr. H. N. Gresley, C.B.E., Chief Mechanical Engineer, L.N.E.R.

Mr. J. Paterson, M.C., Managing Director, Carter Paterson & Co. Ltd.

Mr. T. H. Watermeyer, General Manager, South African Railways and Harbours.

The following corporate members and Associate members were elected during April:—

#### Members

Mr. A. G. Denniss, Chief Traffic Manager, New South Wales Government Railways.

Mr. W. H. Griggs, Commercial Manager, Carter Paterson & Co. Ltd.

Mr. J. Rogan, Manager, Road Motor Services, South African Railways and Harbours.

Mr. J. W. Watkins, D.S.O., M.C., Assistant Divisional Superintendent of Operation (Traffic), Derby, L.M.S.R.

#### Associate Members

Messrs. W. B. Shelton, L.M.S.R.; and L. E. Steventon, Nigerian Government Railway.

At a meeting of the Halifax Joint Omnibus Committee (Halifax Corporation, L.M.S. and L.N.E. Railways) on May 8, Mr. C. J. Selway, C.B.E., Passenger Manager, Southern Area, L.N.E.R., was unanimously elected Chairman of the joint committee for the year ending March, 1937.

The Council of the Institution of Electrical Engineers has awarded the Fahie Premium to Major L. H. Peter, A.F.C., M.C., Chief Electrical Engineer of Westinghouse Brake & Signal Company, for his paper "Modern Developments in Railway Signalling."

Lt.-Col. C. F. Carson, M.C., R.E., who, as announced in our issue of April 17, has been selected to officiate as Agent of the North Western Railway, India, in place of Mr. J. C. Highet, now Member of the Railway Board, was born in 1886, graduated at the Kingston Royal Military College in



**Lt.-Col. C. F. Carson, M.C., R.E.,**

Appointed to officiate as Agent of the North Western Railway, India

Canada and was commissioned in June, 1908, in the Royal Engineers. After the usual Chatham course, he underwent a year's training in the Eastleigh workshops of the former London & South Western Railway before going out to India in December, 1911, when he completed the course in the Locomotive Department of the N.W.R. In August, 1912, he joined the 25th (Railway) Company of Sappers & Miners and a year later was posted as Assistant Engineer, Headquarters Division, N.W.R. On the outbreak of war he proceeded to France and served there throughout hostilities; he was mentioned in despatches, won the M.C. in January, 1917, and received a bar to that decoration in August, 1918. Returning to India in 1919, Col. Carson

was posted as A.C.R.E., Meerut, prior to rejoining the N.W.R. in August of that year as Executive Engineer, Karachi. From 1920 to 1922 he occupied a similar position at headquarters (Lahore), and in 1925 went to Quetta, primarily as Executive Engineer, but also officiating for a short time as Divisional Superintendent. In 1929 he officiated as Bridge Engineer, but returned to Quetta as Divisional Superintendent in 1930, occupying that position until December, 1932, when he was selected as a member of the Pope Economy Committee. On return to the N.W.R. in April, 1933, Col. Carson was appointed Deputy Agent (Organisation) to carry on the work of the committee on that system. It is from this position that he has now been selected to officiate in the chief executive office of the railway, as Agent.

#### INDIAN RAILWAY STAFF CHANGES

Mr. P. R. Leigh-Bennett, Superintendent, Transportation Power, B.N.R., has been appointed Acting Transportation Manager with effect from April 9, *vice* Mr. A. Duncan, Transportation Manager, granted leave from the same date.

Mr. A. E. W. Robinson, Coal Manager, B.N.R., has succeeded Mr. P. R. Leigh-Bennett as Acting Superintendent, Transportation Power, from April 6.

Dr. R. P. Weldon, Chief Medical Officer, A.-B.R., has been granted seven months' leave, as from April 15, and Dr. F. C. Lees has been appointed to act in his place.

Mr. F. J. Salberg, Chief Engineer, A.-B.R., has been granted seven months' leave as from April 22. Mr. L. F. W. Nolan has been appointed Acting Chief Engineer and Mr. S. N. Dutt, Acting Deputy Chief Engineer.

Mr. A. L. Carroll, Superintendent Maintenance, B.N.R., has been granted leave as from April 24, and Mr. J. A. E. Ball has been appointed to act for him.

We regret to record the death of Mr. Henry Ferrett, sometime Assistant Mineral Manager of the former London & North Western Railway, in his 82nd year.

Mr. Gustav Behrens, sometime Director of the Midland and L.M.S. Railways, whose death we announced

in our issue of April 3, left estate valued at £115,863 (£115,007 net).

Mr. Charles Case, who, as announced in our issue of May 15, has been appointed to succeed Mr. A. S. Matthews as Stores Superintendent of

a premium apprentice in the Locomotive Department, and after passing through the usual practical and theoretical training, was appointed Assistant Shed Foreman at Henton Junction, Newcastle-on-Tyne. In August, 1912, he joined the staff of the

posts: Acting Divisional Locomotive Running Superintendent at Cañada de Gomez; Divisional Locomotive Running Superintendent at Villa María, June, 1915; Assistant Locomotive Running Superintendent, March, 1916; and Deputy Locomotive Running Super-



**Mr. Charles Case,**

Appointed Stores Superintendent,  
Central Argentine Railway



**Mr. A. H. Elsdon,**

Appointed Stationmaster, Snow Hill,  
Birmingham, G.W.R.



**Mr. William Gourlay,**

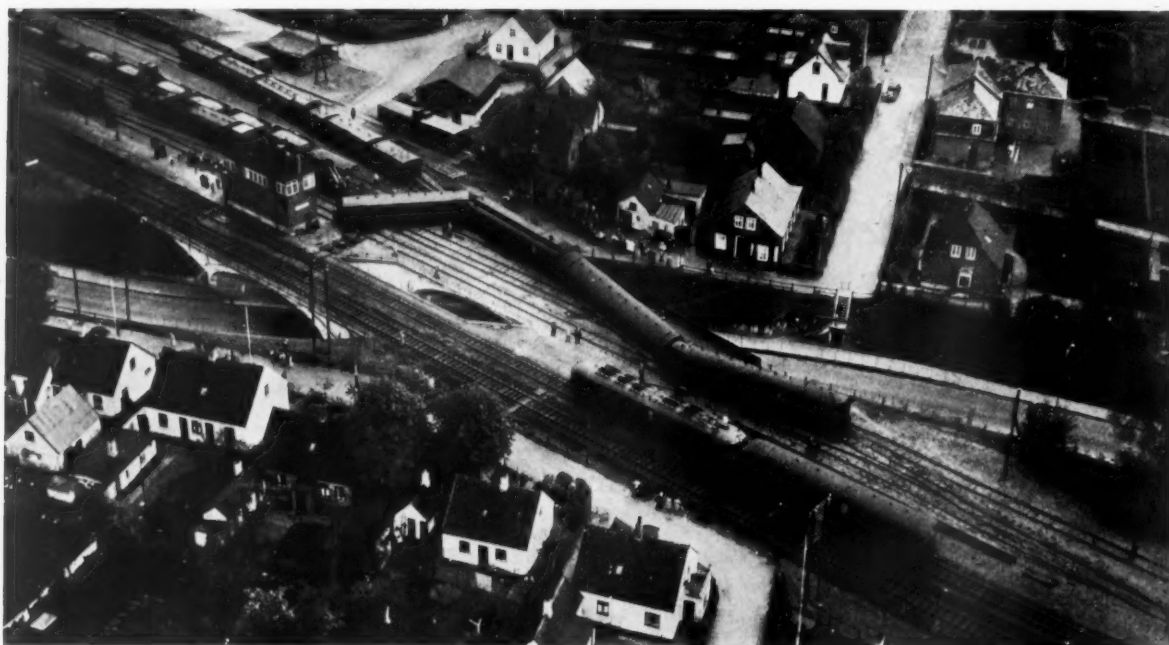
General Manager for Great Britain,  
American Express Company, 1919-36

the Central Argentine Railway, with headquarters at Rosario, was educated at Hingham Grammar School and St. Aubyn's, South Lowestoft. In January, 1904, he entered the service of the North Eastern Railway, England, as

Chief Mechanical Engineer, Central Argentine Railway, and in November of the same year was appointed Junior Assistant to the Locomotive Running Superintendent, in whose department he subsequently filled the following

intendant, February, 1920. In March, 1922, he was appointed Locomotive Running Superintendent.

Mr. A. H. Elsdon, who, as announced in THE RAILWAY GAZETTE of May 1, has



*Aerial view of Danish State Railways express derailment at Hedehusene, described on the opposite page*

been appointed Stationmaster at Snow Hill, Birmingham, G.W.R., joined that railway at Oxford in 1902, but was transferred to Reading in the latter part of the same year. From 1903 to 1906 he was in the parcels section at Birmingham, prior to spending five months in the Telegraph Department at Oxford. Mr. Elsdon was then employed in the Stationmaster's office at Oxford until March, 1913, when he was appointed to take charge of the City office, High Street, Oxford. From 1915 to 1924 he was Head Controller at Reading, and was then appointed Outdoor Representative in the Divisional Superintendent's office at Paddington. His next appointment was as Depot- or Yard-master, Old Oak Common, whence he has now been transferred on promotion to Birmingham, as from April 30.

Mr. William Gourlay, General Manager for Great Britain of the American Express Company, is retiring on June 1. He began work in the Chicago office of the United States Express Company in 1887, and, after filling several positions in that office, he was promoted to be Claim Agent in 1893. This post he held until 1905, when he was appointed Assistant General Agent in Chicago. In 1909 Mr. Gourlay resigned his appointment with the United States Express Company and accepted the position of Claim Agent for the American Express Company in Chicago. In 1910 he was promoted to be Assistant to the Vice-President, and held that post for four years, after which he was made General Traffic Agent, with headquarters in Chicago. In 1916 he was put in full charge of the American Express Company's business in Chicago as General Agent, and in 1918 when the various express companies in America were consolidated into one large concern, known as the American Railway Express, he was given the position of General Agent in Chicago for the new undertaking. It operated over practically all of the American railways, handling all traffic carried in passenger trains, including pick-up and delivery service, and it maintained offices at all railway stations throughout the country. Several years ago the American Railway Express was taken over and is now operated by the railways themselves under the name of the Railway Express Agency. On June 1, 1919, Mr. Gourlay came to London as General Manager for the American Express Company in Great Britain, and has remained in that position to this date. He has been a Director of the American Chamber of Commerce in London, also a Director of the American Club in London since 1920, and was Chairman of the American Society in London in 1929.

We are sorry to learn that Mr. John Quirey, a permanent member of the Railway Rates Tribunal, has had to undergo a serious operation. It is

good news that his condition is satisfactory.

It is with regret that we have to record the death of Field-Marshal Viscount Allenby, G.C.B., G.C.M.G., G.C.V.O., D.S.O., who, though mourned by the whole nation as one of the most brilliant soldiers of our time, was also a Director of the Egyptian Delta Light Railways. At the funeral service at Westminster Abbey on May 19, Sir Montagu Sharpe, D.L., K.C., Chairman, represented those railways.

M. Raoul Boudier, General Secretary of the French State Railways, who has held that office for the last eleven years and who has 44 years' railway service, is now retiring on a pension. Originally entering the service as a draughtsman, he was promoted through various grades until he became General Secretary. In that capacity he has collaborated closely with M. Raoul Dautry, General Manager, in his reorganisation of the State system.

M. Jules Antonini, who succeeds M. Boudier as General Secretary, is a former student of the Ecole Polytechnique. He entered the service of the State Railways five years ago as Chief Assistant to M. Dautry, and is thus already well equipped for his responsible post.

Mr. Sydney O. Browne, Locomotive Superintendent of the Great Southern of Spain Railway, retires on pension at the end of May, after serving nearly 30 years with the company.

From the *London Gazette* of May 19: The King has been pleased to give directions for the appointment of Mr. G. V. O. Bulkeley, C.B.E., Director of Transport in Nigeria, and formerly General Manager of the Nigerian Government Railway, to be a Member of the Executive Council of Nigeria.

We note with regret the recent death of Sir R. N. Mookerjee, K.C.I.E., K.C.V.O., D.Sc.(Eng.), head of the well known Calcutta firm of mechanical engineers, Martin & Company, and one of the greatest industrialists Bengal has produced. He was a Director of the following light railways of Martin & Company: Arrah-Sasaram, Baraset-Basirhat, Bukhtiarpur-Bihar, Futwah-Islampur, Howrah-Amta, Howrah-Sheakhalla, and Shahdara (Delhi)-Saharanpur. He was a member of the Inchcape Railway Committee, a former Sheriff of Calcutta, and an honorary life member of the Institution of Mechanical Engineers. He was, moreover, largely responsible for the formation of the Institution of Engineers (India).

## A Remarkable Accident in Denmark

The illustration opposite shows the results of a derailment which occurred at Hedehusene in Denmark on May 15. The train involved was a morning express from Roskilde to Copenhagen, and the accident narrowly escaped being one of the most serious that have happened in Denmark. At Hedehusene, 20 miles from Copenhagen, this and other eastbound expresses normally pass through the station on the upper of the two main lines in the foreground of the illustration—on which, incidentally, may be seen a diesel railcar and bogie trailer forming a suburban train. On May 15, however, this line was in the occupation of the Engineering Department for repairs, and consequently traffic was being diverted to the first goods loop beyond the signal box. As the points on this road at the extreme right of the picture were of old material, a speed restriction of 20 m.p.h. was in force through the station yard.

When the express was due, at about 11.40 a.m., the relevant signals were kept at "caution" instead of showing "line clear" as usual, and a restriction order had also previously been issued calling the attention of drivers to the speed restriction. The driver of the express, however, had not noted the order, nor did he notice that the signals were not at "clear," and was therefore running through the station at a speed

of about 55 m.p.h. with disastrous results. The engine, tender and a luggage and mail van appear to have taken the right road at the points without derailing, and came to rest, the engine beyond the left hand edge of the photograph, and the mail van just beyond the signal box, where it can be seen still on the first goods running loop. The first of the four passenger coaches would appear to have taken two roads, the front bogie following the engine and mail van along the first loop or third line, and the rear bogie the outermost or gathering line on the extreme left, nearest the top of the illustration. It came to rest with its bogies as seen, still one on each of these tracks, though there are two other roads between them, which the underframe and body are astride. It was fortunate that due to the couplings holding none of the other three derailed coaches capsized and fell over into the road below the underbridge.

As it was, the only damage sustained by the coaches was to their underframes and bogies and in broken windows. For, being of the latest pattern, the bodies were of strong semi-steel or all-steel construction, and, like the couplings, withstood the shock without telescoping or fracture. Consequently, though there were 162 passengers on the train, only four were injured, none of them seriously.



## Ancillary Businesses of the British Railways

### IV—Road Transport

Until 1928 when the railways secured general powers to work on the roads, they confined their activities in the main, so far as goods transport was concerned, to the collection and delivery of goods to and from stations. For this purpose they employed some 3,400 motor vehicles and over 30,000 horse-drawn wagons and carts.

The railways were built in the days of horse transport and as the efficient radius for collection and delivery of goods by horse vehicles was limited, stations were rarely placed more than four or five miles apart. With the coming of the motor vehicle, the effective radius of operation of collection and delivery services was increased to at least twenty miles, with the result that the railways were faced with a two-fold problem. In the first place, it was necessary for them to be able to offer a service which would be more attractive and economical than could be provided by the trader himself, and, secondly, to decide upon the proper use of motor goods vehicles within the limits prescribed by the Railway (Road Transport) Acts, 1928.

#### Mechanisation

The two problems were complementary, since the increase of railway motor fleets depended in a great measure upon the success of the companies with the private firm operating its own motors or employing hauliers to perform its longer distance transport. Conclusive evidence of the success of the efforts made by the companies to regain or retain traffic is afforded by the increase in railway motor vehicles, which now number more than 8,300, including 2,153 mechanical horses; the rapid development of the container system of transport; and the establishment of country lorry services and railhead depots throughout the country. Over 11,200 containers enabling goods to be transported direct from sender to consignee without intermediate handling are in daily use and provide a service for all classes of goods which has been the means of regaining much traffic.

#### Country Lorry Services

These services have been the means of bringing hundreds of outlying villages and farms into regular touch with the railways. At the end of 1935 there were 1,750 country lorry services in operation, by means of which the companies are able to afford rural districts all the advantages of cheap, speedy and reliable transport. Consignments are forwarded by fast goods trains over long distances at cheap rates from manufacturing centres to the distributing stations, whence they are conveyed by the lorry services to destinations. In the reverse direction, farm and dairy produce is collected

by the lorries for conveyance to the railhead.

#### Railhead Distribution

Railhead depots on railway premises at strategic points throughout the country enable the trader to place stocks in close proximity to his market, so that goods can be delivered to the customer within a few hours of the order being received. The system saves both time and money as goods can be despatched to the railhead depot in bulk at cheap rates. Space is available at the depots for offices and show rooms and the whole organisation can be controlled by the firms' own staffs. Alternatively, the railway companies undertake the work, even to the extent of controlling stocks, checking, accepting and executing orders. In some cases special vans are provided, painted and lettered in accordance with the style of the firm whose commodities are dealt with, whilst in other cases such goods are handled in common with the goods of other firms, in a single van. The scheme is revenue-producing and is being increasingly used by the trading community.

A further development in road transport activities in 1935 was the purchase by the G.W.R. and L.M.S.R., of a live-stock haulage business at Knowle, in Warwickshire.

#### Financial Results

The tables at the foot of this page set out the financial results of the companies' road transport and collection and delivery services last year compared with 1934. With regard to the road transport account, it will be seen that each company recorded an increase in receipts, which in three cases was reflected in increased profit.

G.W.R. receipts increased by over £4,000, but expenditure rose by nearly £9,000, chiefly in respect of maintenance and hire of vehicles, with the result that the net profit fell by nearly

£5,000. The L.N.E.R., with increased receipts of £11,000, secured an increase of nearly £3,000 in net profit, this being the best result of the year. L.M.S.R. expenditure showed a considerable increase, and the slightly increased profit was secured only by a decrease of nearly £4,000 in the amount transferred to Renewal Account. The Southern Railway Company's road transport business is comparatively small, and the profit of £6,836 on gross receipts of only £23,263 is very satisfactory.

None of the amalgamated railway companies now operates a passenger road service under its Road Transport Act, 1928, and the amounts shown against passenger services in the L.N.E.R. and L.M.S.R. accounts are in respect of railway-owned vehicles operated by certain municipalities, e.g., Sheffield.

#### Collection and Delivery Services

So far as the collection and delivery services are concerned, these are regarded, in this country, as an essential part of the railway service; in fact, until 1927 the business was included in Railway Working (Account No. 10). Account No. 16, to which they were transferred in 1928, undoubtedly includes many services which are highly remunerative to the companies, but the bulk of the work is covered by inclusive rates fixed, of necessity, on a strictly competitive basis which allows very little for cartage. In these circumstances, it is not surprising that, in the case of those companies serving the principal industrial districts, the collection and delivery account shows a considerable deficit. The Southern Railway alone is able to show a profit, last year's figure being £2,000 greater than that of 1934. The other companies all recorded increased losses, despite increased receipts. The necessity for the provision of collection and delivery services at low rates is being increasingly recognised outside this country, and developments in the direction of the British practice have taken place in Germany and the United States.

ROAD TRANSPORT (Account No. 11)

Company	Receipts		Expenditure		Surplus		Percentage of surplus to gross receipts	
	1934	1935	1934	1935	1934	1935	1934	1935
G.W.R. ...	£ 67,658	£ 71,852	£ 56,574	£ 65,489	£ 11,084	£ 6,363	16.4	8.9
L.N.E.R. ...	171,123	182,195	144,350	152,538	26,773	29,657	15.6	16.3
L.M.S.R. ...	349,460	368,536	290,751	309,133	58,709	59,403	16.8	16.1
Southern ...	21,156	23,263	14,865	16,427	6,291	6,836	29.7	29.4

COLLECTION AND DELIVERY OF PARCELS AND GOODS (Account No. 16)

G.W.R. ...	961,867	996,725	1,085,102	1,127,277	Dr. 123,235	Dr. 130,552	—	—
L.N.E.R. ...	1,151,578	1,208,005	1,474,267	1,533,749	Dr. 322,689	Dr. 325,744	—	—
L.M.S.R. ...	2,096,272	2,133,640	2,478,978	2,528,785	Dr. 382,706	Dr. 395,145	—	—
Southern ...	492,457	507,914	449,601	462,990	42,856	44,924	8.7	8.8

N.B.—Details of the companies' cartage equipment and their shareholdings in passenger and freight road transport concerns appeared in the Road Transport Section of THE RAILWAY GAZETTE of March 13

## THE MONTH'S RAILWAY LAW

### Railway Companies in the Courts

In the Court of Appeal the Great Western Railway Company is appealing from a judgment of Mr. Justice Porter in the action of the company against *Henry R. James & Sons*. There is also an appeal by the London & North Eastern Railway Company in *Baldwin v. the Company*, a workmen's compensation case from Redhill County Court.

### The Railway Rating Case

The last move so far as the Southern Railway is concerned in this case was made before the Railway and Canal Commission this term, and judgment was given on May 5. It was an application by the Railway Assessment Authority, the L.C.C., the Middlesex Valuation Committee, and the Croydon and Brighton Corporations, to review the original order of the Court which was recently affirmed on appeal to the House of Lords. The proposition was a bold one, especially as the statutory period of 28 days (Rule 69 of the Railway and Canal Traffic Rules) had elapsed since the making of the order, which was dated February 6, 1935. The grounds of the application were that in determining deductions to be made from cost of replacement, the Court had failed to allow for age and obsolescence; and that the Court had in mistake failed to allow the deductions which it intended. The application was made under the Railway and Canal Traffic Act, 1888, s. 18 subs. 2, which gives powers to the commissioners to review or vary their orders.

It will be readily understood that the Court was not disposed to welcome the re-opening of elaborate calculations made 15 months ago, and it was held that the application was too late and would involve an impossible task. "The suggestion is that the Court has made an error in applying the principles which it has itself laid down," said Mr. Justice MacKinnon. The applicants produced elaborate accounts to support their case, but Mr. Tyldesley Jones, K.C. on behalf of the railway company succeeded in showing that this was really a re-argument of matters dealt with at the original hearing. It was interesting to note that Mr. Justice MacKinnon and Sir Francis Dunnell in their original calculations had arrived by different methods at nearly the same result—so near, that Mr. Justice MacKinnon had accepted Sir Francis' figures. Naturally they had not kept their drafts or calculations. In any case the Court saw no ground for supposing that on a rehearing it would arrive at a different result. It now remains to be seen how much the companies will recover of the amounts overpaid by them for rates, to which they are clearly entitled, as a result of the interpretation of the Railways (Valuation for Rating) Act, 1930,

by the House of Lords, affirming the Courts below.

### Accident on Way to Work

*Alderman v. Great Western Railway Company.* (March 25, 1936.)

In this case a ticket collector who lived at Oxford had to book on at the station at noon, travel to London, and then to Swansea. He could choose his own lodgings, and on January 16 he took this journey as usual, staying at the lodgings which he had chosen. Next day he set out to walk from his lodgings to Swansea station to take the return journey to London, but slipped on the road and broke his ankle. Upon his claim for compensation the question arose whether this was an accident arising out of and in the course of his employment. The Court held that it was not such an accident. The case turned on the fact that the man was able to choose his own lodgings, and was quite free until he booked on for duty at the station.

In this respect the case is to be distinguished from *London & North Eastern Railway Company v. Bicknell*, 1933 A.C. 289. In that case it was part of the engine driver's duty to go to the company's hostel at the end of his journey at 9 a.m. for rest until the evening and he could not lodge elsewhere. While there he was injured, and it was held that he was not off duty and he was entitled to compensation. In *Alderman's* case, as the Court said in delivering judgment, "his obligations were to leave his address with his employers, not to go too far away, and to sign on at the company's premises where his work lay, at the scheduled hour." Had he had an emergency call at his lodgings and been injured on his way to the station the result might have been different. But as it was, his employment did not begin until he reached the station for the purpose of signing on.

### A Fatal Glass

*Knowles v. Southern Railway Company*, 1936 W.N. 120.

Knowles was a van driver employed by the Southern Railway Company. One evening last summer he was sent out from the Tooley Street depot with a load for Nine Elms. On his way he stopped outside the Fountain Hotel in the Borough, put a chain on the wheel and put the reins through a brass ring on the harness. He left the vanboy in charge and crossed over to the Gladstone Arms opposite, had a pint of beer and, after visiting the lavatory, went back to his van. As he was mounting to his seat the horses began to move, and he slipped and was crushed under the wheel of the van. The company's rules provided that employees must not consume intoxicating liquors while on duty. The County Court Judge held that this

merely regulated and did not limit the scope of the man's employment, and awarded compensation to the man's widow under the Workmen's Compensation Act, 1925.

This decision the Court of Appeal reversed holding that the accident did not arise in the course of the man's employment; for the beer drinking was forbidden by the company's rules. In mounting the box seat he was doing an act which was ordinarily incident to his employment, but was here done to enable him to resume employment which had been wrongfully interrupted, and to get back to the place where he could do his duty. The widow therefore was not entitled to compensation. One cannot doubt that this is a correct interpretation of the words of the Act. But it is an unfortunate case and hard upon the man's dependents.

### Transfer of Goods Vehicle Licences

*Nash v. Stevenson Transport Limited.* (March 6, 1936.)

The plaintiff, Mr. Nash, was entitled under the Road and Rail Traffic Act, 1933, s. 7, to licences for the same number of vehicles as he had operated before the Act came into force, and to carry a corresponding weight of goods. In 1934 he wanted to go out of business and agreed with the defendants to transfer to them his rights under the Act for £375. They were to operate the lorries under his licences, and in his name, keeping the necessary records to comply with the Act. If the contract was found to be illegal, the money was to be returned. The money had not in fact been paid over to the plaintiff. It was not suggested that the partners contemplated any illegality, but it seemed clear that the result would be a breach of Sec. 1 of the Act of 1933. It is essential that the owner named in the licence should remain personally responsible for the running of the vehicles. In selling the goodwill and going out of business an owner must, according to the Statute, have nothing more to do with the operation of vehicles run under his existing licences. It followed that the agreement was void and unenforceable. Mr. Nash was suing for payment of the £350 still payable under his agreement with the defendants, but Mr. Justice Humphreys and the Court of Appeal both held that as the agreement was unenforceable for illegality, the plaintiff could not recover. This ruling as to the rules which apply to the transfer of licences is important.

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RAILWAY ACCOUNTS.—Mr. J. Quirey, C.B.E., a former Vice-President of the L.M.S.R. lectured on May 7 to the Railway Club in London, on "Railway Accounts." After an historical introduction, he gave a detailed analysis of the accounts in the L.M.S.R. financial statement for 1935, explaining the reason and meaning of the items, and their inter-relation.

## QUESTIONS IN PARLIAMENT

### Leicester Station

Mr. Lyons, on May 7, asked the Minister of Transport if he could state when, approximately, work would commence on the reconstruction of the L.N.E.R. station at Leicester.

Mr. Hore-Belisha: The reconstruction of Leicester station is not included in the works scheduled in the Railways (Agreement) Act.

### Rating of Railways

Mr. Thorne, on May 14, asked the Minister of Health if he was aware of the Railway and Canal Commission's decision in connection with railway assessments; that unless there was some alteration made in the rating assessments of the railway companies it would mean an additional rate to many local authorities that had railway property in their boundaries ranging from 5d. to 1s. in the £; and whether the Government had any intention of bringing a Bill before the House to deal with the matter.

Sir Kingsley Wood: I am aware of the decision with regard to the Southern Railway. I am not at present in a position to calculate what its effect may be on the rates of the local authorities concerned, but that aspect of the matter is engaging my attention. The Associations of Local Authorities, as I understand, have the whole issue under review, and I can make no statement at present in reply to the last part of the question.

Mr. McLaren asked the Minister of Health if he was aware that, owing to the development works and general improvements now being undertaken by railway companies, the London County Council, and other city and borough councils, considerable speculation was now taking place in the increasing land values contiguous to these works; and if he would take steps to recover these increasing values by authorising local authorities to impose a special rate on land values.

Sir Kingsley Wood: No, Sir. The rating system is regulated by Statute, and I have no power to take the action suggested.

### Railways and Air Services

Mr. Wakefield asked the Under-Secretary of State for Air whether he was aware that the recently published summer programme of Railway Air Services, of which the Government-subsidised company of Imperial Airways Limited and the railway companies were shareholders, proposed new routes not previously operated by this concern but hitherto by independent smaller companies; whether the Air Ministry would check this uneconomic competition by railway and Government interests in the light of the need for encouraging enterprise by small concerns; whether the Air Ministry was approached by Railway Air Services before this programme was adopted;

and, if so, what reply the Air Ministry gave to these proposals.

Sir Philip Sassoon: The answer to the first part of the question is in the affirmative; the programme of the services proposed to be operated this summer by Railway Air Services Limited was received by the Air Ministry in the normal course of circulation. As regards the second part, the Air Minister has no reason to suppose that the new services are contrary to the public interest, but in any case he has at present no power to veto any proposed air service in this country, nor can he prejudice any questions of general policy which may require consideration in the light of the report of the Maybury Committee. As regards the third and last parts of the question, it will be seen from what is stated above that the company was under no obligation to approach the Air Ministry, and they did not in fact do so.

### M.P.'s Vouchers

Sir D. Thomson asked the Secretary to the Treasury what discount, if any, the Government got off the published fares, singles, tourist return, and monthly return, on railway tickets issued to members of Parliament.

Captain Margesson (Treasury Parliamentary Secretary) replied: No discount is received in respect of railway tickets issued to members of the House in exchange for Parliamentary vouchers.

### Tourist Traffic to Italy

Mr. Johnston, on May 18, asked the Secretary of State for Foreign Affairs whether, in view of the advertisements in Regent Street, London, of the Italian State organisation C.I.T. offering British travellers a reduction of 70 per cent. in their railway fares if they would make holiday in Italy and spend British currency, and of the decision of the British Government to uphold the Covenant of the League of Nations and boycott any aggressor State, he would say what steps it was proposed to take to discourage the transfer of British currency to Italy during the forthcoming tourist season.

Mr. Eden: Neither the Co-ordination Committee nor the Committee of Eighteen at Geneva has recommended any specific measures to restrict tourist traffic to Italy, and His Majesty's Government does not contemplate any individual initiative in the matter.

### The Iraq Railways

Mr. Leach asked the Secretary of State for Foreign Affairs if he could say what capital outlay was involved in the Iraq Railway now to be transferred to the Government of Iraq; how long it had been running, and the financial results therefrom.

Mr. Eden: As regards the first and second parts of the question, I would

refer the hon. member to the latter part of the reply which was returned to the member for Moseley on April 7. I should add, however, that a small section of the present system was constructed by the Bagdad Railway Company before the war. As regards the last part of the question, it is not possible to summarise the financial results of the working of the railway system within the compass of a Parliamentary reply.

### The Abyssinian Railway

In House of Commons on May 13, Mr. Baldwin said, in reply to Mr. Mander (Wolverhampton): I understand that the railway services from Djibouti to Addis Ababa are functioning normally, but I have no information as to whether use is being made of the railway by Italian troops in the occupied part of Abyssinia.

Mr. Mander: Surely the use of this railway, having been consistently denied to the Abyssinians by the French, is not now going to be handed over to the Italians?

Mr. Mander, on May 19, asked the Secretary of State for Foreign Affairs if he would state whether the Djibouti French-controlled railway was now being used for the transport of Italian troops and munitions.

Viscount Cranborne (Under Secretary): I have no reason to believe that Italian troops and munitions are being landed at Djibouti. As regards that part of the railway which lies in Ethiopian territory now under Italian military control, I have no reliable information of any kind.

Mr. Graham White asked the Secretary of State for Foreign Affairs if he could state whether the shares in the Djibouti Railway, transferred from French to Italian ownership in January, 1935, carried any rights of management or control.

Viscount Cranborne: While I understand that the agreement of January, 1935, between France and Italy in regard to the Djibouti Railway involved the transfer to Italian interests of approximately one-sixteenth of the share capital, and the right to one seat on the board, I am not aware of the extent of participation in the management which this involves.

### L.P.T.B. Capital

Mr. Bosson, on May 20, asked the Minister of Transport to state the total registered capital of the London Passenger Transport Board holdings; and how much of this was held by municipal or public bodies.

Mr. Hore-Belisha:—The total capital of the London Passenger Transport Board issued and outstanding at June 30, 1935, was £111,535,454, of which £9,835,036 was 4½ per cent. L.A. Stock (1975/2023) issued to certain local authorities as consideration for the transfer of their undertakings. This stock is still held by the authorities concerned. I am unable to state what amount of other stocks of the board is



## NOTES AND NEWS

now held by municipal or public bodies, but I am informed that £189,050 of A, B, and C transport stock, in approximately equal proportions, was issued to two local authorities as consideration for the transfer of their undertakings.

Mr. Bosson also asked the Minister of Transport if he would state up to what amount the Government had expressed its willingness to guarantee the capital that might be needed for extensions or improvements; and how much had been guaranteed for these purposes for the L.P.T.B.

Mr. Hore-Belisha.—The maximum amount which the Treasury undertook to guarantee under the recent agreements with the London Passenger Transport Board and the main line railway companies was £66½ millions, of which the amount allocated to the L.P.T.B. was £28 millions.

#### First Class on London Local Lines

Sir George Mitcheson asked the Minister of Transport whether he was aware that first class tickets were being issued at London underground stations even though it was known that there might be no first class accommodation provided on the train or trains then next following; and whether he was prepared to make representations on the matter to the London Passenger Transport Board.

Mr. Hore-Belisha.—I am informed by the London Passenger Transport Board that since May 4 first class accommodation on the Hammersmith and City Line has been withdrawn, so that, of the 40 trains per peak hour between Baker Street and the City, the 12 which operate from Hammersmith to Aldgate and Barking Line do not carry first class accommodation. It is hoped that this arrangement will prove satisfactory.

### Parliamentary Notes

#### Progress of Railway Bills

The G.W.R. (Additional Powers) Bill was read a third time and passed in the House of Commons on May 15. It was read a first time in the House of Lords on May 19. The London Passenger Transport Board Bill was considered and ordered for third reading in the House of Commons on May 15, and the third reading was to take place yesterday (May 21). Consideration in the Commons of the L.N.E.R. Scottish Order Confirmation Bill, which was read a third time in the Lords on May 12, has been deferred till May 27. The L.N.E.R. (General Powers) Bill was before a Select Committee of the House of Commons on May 14, and on May 19. The only matter in dispute was the form in which protection should be given to employees who might be affected by the transfer of the Tyne dock to the Tyne Improvement Commission. Amendments in this connection were approved by the committee, and the Bill was ordered to be reported to the House.

#### Standard and Exceptional Charges Review.

—Owing to the illness of Mr. John Quirey, the sitting of the Railway Rates Tribunal to review the standard and exceptional charges for the four amalgamated railway companies, which had been fixed for May 20, has been postponed.

**Grantham Accident: Enginemen for Trial.**—Drivers D. Ward and J. Smith, and Fireman H. Calvert were committed for trial at Grantham on Tuesday on charges of manslaughter arising out of the collision at Barkston, L.N.E.R., on January 19, in which eight platelayers were killed.

#### Industrial Transport Association Congress.

—The annual congress of this association has been arranged to take place at Glasgow from May 31 to June 6 when, besides a number of functions and visits, papers will be read and discussed on "Transport Co-ordination."

#### A.S.L.E.F. Annual Conference.

The annual conference of the Associated Society of Locomotive Engineers and Firemen was opened in London on May 18. One of the subjects under discussion was the claim for the restoration of the remaining deductions from earnings operating under the National Wages Board decision of March, 1931.

**"Lords" Proposed as Name for London Transport Station.**—The Marylebone Cricket Club has proposed to the London Passenger Transport Board that St. Johns Wood Road station should be renamed "Lords," on account of its being the nearest station to the ground; the suggestion is now being considered.

#### Trip to See the "Queen Mary"

**Sail.**—The Southern Railway is issuing special combined rail and reserved seat tickets to see the *Queen Mary* leave Southampton on Wednesday next, May 27, on her maiden voyage. The reserved seats are on the roof of the International Cold Storage Company's building, and will afford a magnificent view of the vessel's departure. A special restaurant train will leave Waterloo at 1.18 p.m. The inclusive fare for the return rail journey and reserved seat is 10s. 6d.

**The Abyssinian Railway.**—During the past few days press reports from both Paris and Djibouti have indicated that the Italian Government is seeking to obtain control of the Franco-Ethiopian Railway from Djibouti to Addis Ababa. In Paris it is stated that the Abyssinian feudal chiefs (or Rasas) have already sold to Italy their small shareholdings in the railway. A Djibouti rumour states that Italy has unofficially suggested taking over both the port and the section of railway in French Somaliland, in exchange for compensation to the French elsewhere. Some of the possibilities in connection with this railway were discussed last week in an editorial article on page 936 of THE

RAILWAY GAZETTE, and various "questions" which have been asked in the House of Commons are recorded on the opposite page.

**Another G.W.R. Halt.**—A new halt at Astwood, between Fernhill Heath and Worcester Shrub Hill stations, was opened for passenger traffic by the G.W.R. on Monday last, May 18. The streamlined diesel railcar services between these two points will call at the new halt.

#### G.W.R. Engine named after King

**Edward VIII.**—The King has consented to a Great Western Railway locomotive being named after him, and engine No. 6029 has therefore been named *King Edward VIII*. This engine, of the "King" class, is of the four-cylinder type, and has a tractive effort of 40,300 lb. It will be attached to the Old Oak Common locomotive sheds, and will be used on principal expresses, including the Cornish Riviera Limited and the Bristolian.

#### Tyneside Electrified Lines.

—The electric service between Newcastle and Whitley Bay will be suspended from this (Friday) evening until Monday evening, while the conductor rail is moved 3½ in. nearer the running rail to conform to the Ministry of Transport standard dimensions. At the same time, the modification of the trains will be carried out in the Gosforth sheds. This work is being undertaken as part of the general modernisation scheme, which includes also the provision of 130 new electric coaches. A steam train service is being run during the week-end.

#### General Strike on Mexican

**National Railways.**—A general strike on the National Railways of Mexico became effective on May 19, involving 50,000 employees. All stations and offices throughout the Republic are closed and are being guarded by strike pickets. Only mail and troop trains will run during the strike period. The British-owned Mexican Railway running from the capital to the port of Vera Cruz is, however, not affected, states a Reuters message from Mexico City. A later message says that as a result of the arbitration board deciding against the strikers, giving them 24 hours to return to work or be dismissed, normal train service has been resumed.

#### Belfast Omnibus Company.

—The voluntary winding up of this company was resolved upon at a recent meeting. Mr. W. H. Capstick, the Chairman, said that almost the whole of the £119,041 of Northern Ireland Transport A.I. stock, which had been allotted in part consideration of the transfer of the undertaking to the Transport Board had been realised, and the bulk had been sold at 102 per cent. Of the £271,250 Northern Ireland Transport B stock allotted, only a small amount had been sold and £247,000

of this would be available for distribution to the shareholders. This would mean £1 11s. 6½d. of B stock for each £1 ordinary share and 3s. 4.96d. B stock for each 1s. deferred share. There would also be a cash distribution of 5s. 0.72d. on each ordinary share and 1s. 1.68d. on each deferred share.

**New L.M.S.R. Steamer for Heysham-Belfast Service.**—Yesterday, (Thursday) the *Slieve Bearnagh*, a cargo and livestock steamer for the L.M.S.R. Heysham-Belfast service, was launched by William Denny & Brothers Limited, Dumbarton. The new vessel is capable of carrying about 730 head of cattle; has an overall length of 309 ft.; a moulded breadth 45 ft.; and a moulded depth of 16 ft. 6 in. The machinery consists of two sets of Parsons single-reduction geared turbines. Steam will be generated by two coal-fired Babcock & Wilcox boilers.

**Institution of Railway Signal Engineers.**—At a general meeting on May 20, Mr. R. S. Proud, Chief Assistant in the Signal Engineer's Office, London Passenger Transport Board, read a paper on "Electro-pneumatic Operation for Signalling Apparatus," which awakened much interest. The author supplemented it by lantern slides and additional explanations. In the discussion Messrs. W. S. Every, F. R. Addis, M. Shorter, T. Eldridge, S. L. Glenn, F. L. Castle, H. E. Morgan, J. Boot, H. M. Proud, H. H. Dyer, W. Challis, A. Moss, and the President, Mr. W. S. Roberts, spoke. A communication was received from Mr. H. E. Cox of the G.I.P. Railway. The Institution will visit the power signalling at Fenchurch Street, L.N.E.R., this evening, May 22.

**Rating of Let-Out Properties at Stations.**—The House of Lords allowed on May 20 the appeal of the Westminster City Council and the County Valuation Committee for Kent against the decision of the Railway and Canal Commission that certain bank and shop premises and bookstalls inside Victoria station and certain sites let out to traders in Beckenham Junction goods yard were not so let out as to be capable of separate assessment. The Commissioners had been of opinion that the tenants of these premises had only a subordinate occupation, the railway company being in paramount and exclusive occupation. They had also felt themselves bound by a previous decision of the Court of Appeal in *Smith v. Lambeth Borough Council*, that W. H. Smith & Son's bookstalls at Victoria were not separately rateable. Lord Wright, in delivering judgment, said that the restrictions imposed on the tenants by the railway company necessary for the proper working of Victoria station as a whole were merely restrictions in the tenants' user and enjoyment and did not make the tenants' occupation other than a sole and exclusive operation. Dealing with the premises at Beckenham Junction Lord Wright said that they were specific and de-

lined sites and were capable of separate occupation just as much as the shops at Victoria station. He was of opinion that the case of *Smith v. Lambeth* was wrongly decided. He could not see how the railway company could be said to be in occupation of the bookstalls at Victoria. Lord Russell of Killowen and Lord Macmillan also gave short judgments in agreement with that of Lord Wright, and the appeal was allowed with costs.

**Popularising R.A.S. Travel.**—Railway Air Services Limited announces that, with a view to popularising air travel, cheap day bookings will be given on certain days of the week between many points covered by the following summer services, which begin on May 25: Manchester to Brighton via Liverpool, Birmingham, Bristol, Southampton, and Ryde; and Bristol to Plymouth via Weston-super-Mare, Cardiff, Haldon Aerodrome for Teignmouth, Torquay, and Newton Abbot. Arrangements are also being made for the planes on the Manchester and Brighton service to call, if required, at Stoke-on-Trent and at the new Gloucester and Cheltenham air port when it is opened in June.

**Luggage in Advance from Channel Islands to Mainland.**—A facility of considerable importance to Channel Islands holiday makers is announced by the Southern and Great Western Railways. As from May 25, by arrangement with the Customs authorities, passengers may send luggage in advance from the Channel Islands to any station on the mainland at the usual P.L.A. rates. An additional charge of 1s. a package will be made by the companies for the service of passing the luggage through the customs and dispatching it to the destination on the mainland. Passengers will be required to fill up a declaration form at the same time as completing the luggage-in-advance form and a special label for the keys of the packages, which must be handed to the companies' staff; the keys will afterwards be posted to the owner's home address. Up to the present the P.L.A. arrangements have applied only to luggage dispatched from the mainland to the Channel Islands.

**L.N.E.R. (King's Cross) Literary Society.**—The 82nd annual general meeting of the members of this society took place at King's Cross on Friday, May 15, when the chair was taken by Mr. O. H. Corble, Assistant to the Chief General Manager of the L.N.E.R. Among those present were Mr. C. F. Slade, District Engineer; Mr. F. Warriner, District Superintendent (Chairman of the General Committee of the society); and Messrs. G. N. Griffith, A. G. Rickett, and J. Walker (retired). In submitting for adoption the annual report and statement of accounts for 1935, the Chairman made a comprehensive survey of the activities of the society during the twelve months. It was noted with satisfaction that there had been a slight increase in the membership. The committee had made special endeavours to keep the library

up to date by purchasing a large number of new and recent works and there had been increased expenditure on this account. The billiards section had every reason to be gratified by the results of its efforts during the year. The report and accounts were unanimously adopted.

**New French Railcar Train.**—According to Reuters, a three-car Bugatti petrol-engined train is making trial runs on the Molsheim-Strasbourg line of the Alsace-Lorraine Railways. The four 250-b.h.p. Bugatti engines are mounted in a short vehicle in the centre, and a total of 150 passengers are carried in the two end cars. The train is intended for service on the French State Railways.

**Railwaymen as Film Extras.**—Over 200 local employees, relatives, and friends took part in making one of the L.M.S.R. staff educational films at Leicester station last week-end. The film, which is being made to the requirements of the Chief Operating Manager by the Advertising and Publicity Department, will illustrate the "right" and "wrong" methods respectively of handling passenger traffic at a big station during the busy season. During the filming operations, which lasted for the greater part of the day, the whole of one platform was closed to ordinary traffic. A specially made-up restaurant car train was used for the purposes of the film.

**Grand Trunk Appeal Case.**—The Privy Council gave, on May 14, its reserved decision in the two consolidated appeals of *Lovibond v. Grand Trunk Railway Company of Canada*. Mr. Lovibond claimed, on behalf of himself and of other holders as at January 18, 1923, of the preference and common stocks of the Grand Trunk Company, a declaration that they were entitled to be registered as such holders and that the register should be rectified accordingly, maintaining that the transfer of those stocks to the Canadian Minister of Finance was illegal and ultra vires. On this point he was unsuccessful. Their Lordships were, however, of opinion that Mr. Lovibond was entitled as of right to appeal to His Majesty in Council, and that he was entitled to bring an action for damages against the Canadian National and Grand Trunk Railway Companies for alleged breach of duty in removing his name from the stock registers.

**New Inquiry Office at King's Cross, L.N.E.R.**—Mr. C. J. Selway, Passenger Manager, Southern Area, L.N.E.R., officially opened the new inquiry and seat reservation office on No. 10 platform, King's Cross station, last Wednesday. The office occupies the site of the former cloakroom, and is adjacent to the main concourse, instead of being some way down the platform as hitherto. A staff of 40 to 50 will be employed at busy periods for dealing with personal and telephone inquiries, and the ample length of the counters will minimise waiting. There are 17 telephone lines available, instead of six as in the former office, and four of these are allocated to communication with

the 200 odd L.N.E.R. offices and stations in the London suburban area, all of which can now issue seat and sleeping berth reservation tickets on demand. Thirteen lines are available for public telephone inquiries. The answering of queries at the counter is expedited by the maps, fare tables, and time sheets of the East Coast main line and its connections displayed under the glass top. Noiseless telephones, and glass panels between the public and clerical portions, add the merit of silence to this spacious and tastefully decorated office, which is to be furnished with chairs and tables at which patrons can consult the company's travel literature.

**Reynolds Rolling Mills.**—A private company has been registered under the name of Reynolds Rolling Mills Limited to manufacture aluminium and magnesium alloy sheets and strip and allied products, as an extension of the aluminium alloy products in tubes, bars, and sections already being made by the Reynolds Tube Co. Ltd., at Hay

Hall Works, Tyseley. It has been arranged to take over a range of existing buildings near Birmingham, and actual manufacture is expected to begin in a few months time. The capital of the new company, registered at £200,000, is being subscribed for by Tube Investments Limited and High Duty Alloys Limited. The registered offices are at Hay Hall Works, Tyseley, Birmingham.

**Road Accidents.**—The Ministry of Transport return for the week ended May 16 of persons killed or injured in road accidents is as follows. The figures in brackets are those for the corresponding period of last year:—

	Killed, including deaths resulting from previous accidents		Injured	
England	94	(96)	4,126	(3,451)
Wales	4	(3)	184	(138)
Scotland	7	(13)	391	(373)

105 (112) (4,701) (3,962)

The total fatalities for the previous week were 120, as compared with 132 for the corresponding period of last year.

### British and Irish Traffic Returns

GREAT BRITAIN	Totals for 20th Week			Totals to Date		
	1936	1935	Inc. or Dec.	1936	1935	Inc. or Dec.
L.M.S.R. (6,917 mls.)						
Passenger-train traffic...	£ 434,000	£ 433,000	+ 1,000	£ 8,114,000	£ 8,120,000	- 6,000
Merchandise, &c. ...	511,000	473,000	+ 38,000	9,414,000	8,916,000	+ 504,000
Coal and coke ...	218,000	220,000	- 2,000	5,201,000	4,948,000	+ 253,000
Goods-train traffic ...	729,000	693,000	+ 36,000	14,615,000	13,858,000	+ 757,000
Total receipts ...	1,163,000	1,126,000	+ 37,000	22,729,000	21,978,000	+ 751,000
L.N.E.R. (6,332 mls.)						
Passenger-train traffic...	278,000	277,000	+ 1,000	5,343,000	5,353,000	- 10,000
Merchandise, &c. ...	324,000	332,000	- 8,000	6,452,000	6,182,000	+ 270,000
Coal and coke ...	225,000	214,000	+ 11,000	4,871,000	4,640,000	+ 231,000
Goods-train traffic ...	549,000	546,000	+ 3,000	11,323,000	10,822,000	+ 501,000
Total receipts ...	827,000	823,000	+ 4,000	16,666,000	16,175,000	+ 491,000
G.W.R. (3,746½ mls.)						
Passenger-train traffic...	183,000	181,000	+ 2,000	3,401,000	3,420,000	- 19,000
Merchandise, &c. ...	201,000	193,000	+ 8,000	3,708,000	3,549,000	+ 159,000
Coal and coke ...	100,000	99,000	+ 1,000	2,126,000	2,057,000	+ 69,000
Goods-train traffic ...	301,000	292,000	+ 9,000	5,834,000	5,606,000	+ 228,000
Total receipts ...	484,000	473,000	+ 11,000	9,235,000	9,026,000	+ 209,000
S.R. (2,154 mls.)						
Passenger-train traffic...	275,000	267,000	+ 8,000	5,124,000	5,140,000	- 16,000
Merchandise, &c. ...	69,000	67,000	+ 2,000	1,195,000	1,194,000	+ 1,000
Coal and coke ...	27,000	28,000	- 1,000	690,000	635,000	+ 55,000
Goods-train traffic ...	96,000	95,000	+ 1,000	1,885,000	1,829,000	+ 56,000
Total receipts ...	371,000	362,000	+ 9,000	7,009,000	6,969,000	+ 40,000
Liverpool Overhead ...	1,118	1,109	+ 9	22,295	22,147	+ 148
Mersey (4½ mls.) ...	3,690	3,654	+ 36	82,045	81,409	+ 636
London Passenger Transport Board ...	566,100	550,200	+ 15,900	25,044,400	24,747,100	+ 297,300
IRELAND						
Belfast & C.D. pass. (80 mls.)	2,111	2,056	+ 55	36,700	38,431	- 1,731
" " goods	617	629	- 12	10,812	9,866	+ 946
" " total	2,728	2,685	+ 43	47,512	48,297	- 785
*Great Northern pass. (543 mls.)	8,550	8,150	+ 400	159,450	156,000	+ 3,450
" " goods	10,450	10,100	+ 350	188,400	178,000	+ 10,400
" " total	19,000	18,250	+ 750	347,850	334,000	+ 13,850
†Great Southern pass. (2,076 mls.)	29,533	31,410	- 1,877	552,272	549,880	+ 2,392
" " goods	41,878	39,144	+ 2,734	800,628	757,205	+ 43,423
" " total	71,411	70,554	+ 857	1,352,900	1,307,085	+ 45,815

\* 46th week, the receipts for which include those undertakings not absorbed by the L.P.T.B. in the corresponding period last year; last year's figures are, however, adjusted for comparative purposes

† 19th week

### British and Irish Railways Stocks and Shares

Stocks	Highest 1935	Lowest 1935	Prices	
			May 20, 1936	Rise/ Fall
G.W.R.				
Cons. Ord. ...	55½	44½	48½	—
5% Con. Prefce. ...	124	108	121½	—
5% Red. Pref. (1950) ...	117	106½	110½	—
4% Deb. ...	118½	108	115½	—
4½% Deb. ...	122	110	118½	—
4½% Deb. ...	129½	118	127½	—
5% Deb. ...	140½	130	140½	—
2½% Deb. ...	82½	68½	78	—
5% Rt. Charge ...	137	128	135½	—
5% Cons. Guar. ...	136½	120½	131½	—
L.M.S.R.				
Ord. ...	25½	16	23½	-1
4% Prefce. (1923) ...	58½	43½	71	-1
4% Prefce. ...	87½	73½	87	-1
5% Red. Pref. (1955) ...	107	97½	107½	—
4% Deb. ...	110½	99½	110½	—
5% Red. Deb. (1952) ...	119½	111½	116½	—
4% Guar. ...	105½	95½	105½	—
L.N.E.R.				
5% Pref. Ord. ...	157½	8½	11	-5½
Def. Ord. ...	78½	45½	58	-1½
4% First Prefce. ...	74½	48	69	-1
4% Second Prefce. ...	313	167½	27	-1
5% Red. Pref. (1955) ...	92½	71	94½	—
4% First Guar. ...	103½	93	103	-1½
4% Second Guar. ...	98½	82½	97½	—
3% Deb. ...	86	75	84½	—
4% Deb. ...	109½	98½	109	—
5% Red. Deb. (1947) ...	118½	106½	112½	—
4½% Sinking Fund Red. Deb. ...	112½	108	110	—
SOUTHERN				
Pref. Ord. ...	87½	69½	94	-1
Def. Ord. ...	25½	16½	23½	-1½
5% Prefce. ...	124	108½	123	—
5% Red. Pref. (1964) ...	117½	109½	118½	—
5% Guar. Prefce. ...	136½	121½	131½	—
5% Red. Guar. Pref. (1957) ...	121½	112½	118	—
4% Deb. ...	116½	107	114	—
5% Deb. ...	138	130½	138½	—
4% Red. Deb. ...	115	106½	115½	—
1962-67				
BELFAST & C.D.				
Ord. ...	9	4	9	—
FORTH BRIDGE				
4% Deb. ...	111½	104½	105½	—
4% Guar. ...	109½	104	106½	+1
G. NORTHERN (IRELAND)				
Ord. ...	20	7	18½	—
G. SOUTHERN (IRELAND)				
Ord. ...	57½	14½	59	—
Prefce. ...	50	25½	60	+1½
Guar. ...	88½	51½	88½	—
Deb. ...	86½	70	91½	+3½
L.P.T.B.				
4½% "A" ...	130	119½	125½	—
5% "A" ...	139½	130	135½	—
4½% "T.F.A." ...	113½	108	110	—
5% "B" ...	131½	122½	129	—
5% "C" ...	109½	91	103	—
MERSEY				
Ord. ...	23½	9½	26½	—
4% Perp. Deb. ...	100½	93½	97½	—
3% Perp. Deb. ...	75½	67	76	—
3% Perp. Prefce. ...	62	47½	64½	—

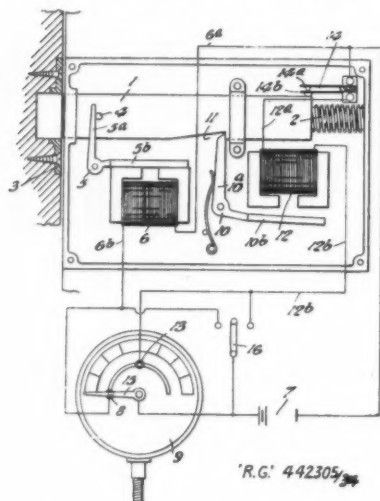


## ABSTRACTS OF RECENT PATENTS\*

**No. 442,305. Improvements in means for Locking Railway Carriage Doors**

Thomas George Kivrage Parker, of 86, Leigh Road, Leigh-on-Sea, Essex. (Application date, October 2, 1934.)

An electrically operated door locking means has a stout sliding bolt 1 urged by a spring 2 into a jamb-plate 3 fitted in the door post. The bolt has a projection 4 which engages one limb 5a



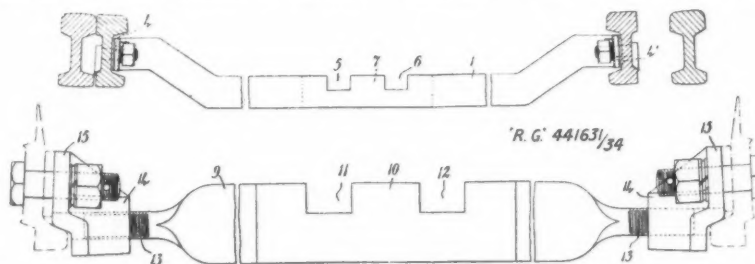
of a bell-crank lever 5. The other limb 5b acts as an armature of a strong electro magnet 6 connected by a lead 6a to a source of current 7, and by a lead 6b to a contact-making screw 8 on the dial 9 of a speedometer. A second bell-crank lever 10 is provided, having the free end of one of its limbs 10a shaped to engage in a notch 11 cut in the bolt 1, so as to act as a trip catch to retain the bolt in its retracted position. The other limb 10b forms the armature of a further electro-magnet 12 connected in an electric circuit embodying a make-and-break contact device 14, and ending in a further contact 13 on the speedometer dial. At speeds of two or three miles an hour the device is unaffected; above these speeds the speedometer hand 15 contacts with the point 13, energising the electro magnet 12 which in effecting the movement of the bell-crank lever 10 operates a trigger release action and causes the bolt to spring into the locking position. In so doing the make-and-break 14 opens, thus breaking the circuit until the bolt is retracted. When the speed of the train drops below two or three miles an hour, the hand 15 contacts with the pin 8 and a circuit is completed

through the magnet 6, which by means of its armature 5b causes the lever 5 to retract the bolt. The circuit will be broken as the hand 15 passes beyond the pin 8. A master switch 16 is provided to allow of the system being operated independently of the speed of the train. The pivots 5 and 10 of each of the bell-crank levers may be arranged so that keys can be inserted to lock or unlock the doors independently of the electrical system.—(Accepted February 6, 1936.)

**No. 441,631. Facing Point Lock-Stretcher Bar for Railway Switches**

Llewellyn Wynn-Williams, B.Sc., of Haughton Bridge works, Darlington, Durham. (July 23, 1934.)

A lock-stretcher bar 1 of the acotropic type has a thickness of about  $\frac{3}{8}$  in. The end portions of this bar are bent at right-angles and are secured to the webs of the point rails by bolts passed through the holes 4, 4'. The end portions of the bar present a convex surface towards the point rails. Two slots 5 and 6 which receive the facing point lock are provided along the bar, a piece of steel 7 being welded in the vicinity of the slots to give mechanical stability. In another form of the stretcher bar, a steel strip 9 about 3 in. wide is reinforced at 10 in order to provide two rectangular ports 11 and 12 which receive the point lock. The ends of the strip 9 are formed as bolts 13, which may be screwed into brackets 14 having a portion 15 with a hole through which a bolt is passed in order to secure the bracket to the point rail. These end portions 15 are formed so as to give the standard 1 in 20 inclination adopted on British railways and are also shaped so as to rest on the bottom flanges of the point rails. This construction may be employed as a standard bar for switches of different

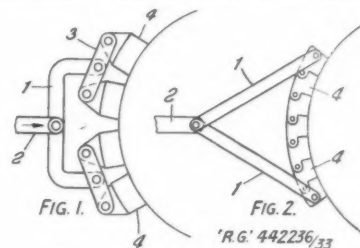


gauges, since by rotating the brackets 14 relative to the bar, the effective gauge of the bar may be either widened or shortened to suit the gauge of track with which the bar is to be associated.—(Accepted January 23, 1936.)

**No. 442,236. Improvements Relating to Brake Blocks**

The Knorr-Bremse Aktiengesellschaft of 9-17, Neue Bahnhofstrasse, Lichtenberg, Berlin, Germany. (Convention Date, October 24, 1933.)

A brake block is divided into the greatest practicable number of individual blocks, which have the smallest possible arc length. These blocks are arranged on a block holder so that the pressure acting on them acts radially on the wheel. The surface of the blocks which bear on the tyre are so small that any difference in heating has no disadvantageous consequences. The block holder 1 is articulated to a rod 2 which transmits the brake pressure. The whole forms a fork-shaped structure. On the ends of the holder

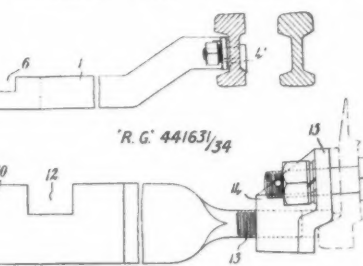


1, levers 3 are mounted, the ends of which carry the narrow brake block elements. Alternatively the brake block elements 4 are pivotally connected together in the form of a chain, so that the entire brake block constitutes a body composed of members movable relatively to one another. The rods 1 are connected to the end members of the block, while they are also connected to a common brake rod 2.—(Accepted February 5, 1936.)

**No. 441,665. Vehicle Brakes**

The Bergische Stahl-Industrie, of Remscheid, Germany. (Convention date: October 11, 1934.)

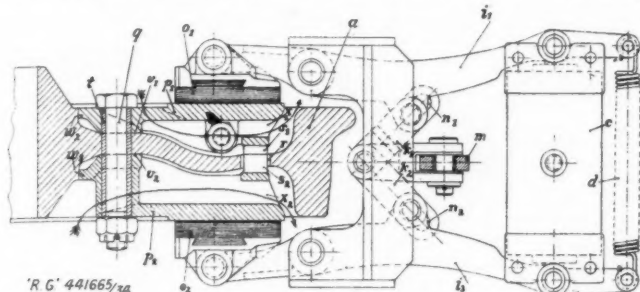
In an improved vehicle brake the wheels a are provided internally and externally with a forked brake



mechanism. The brake cylinders c for operating the brakes are counter-balanced by return springs d. The brake mechanisms can be interconnected by means of rods and toggle levers so as to be operated by a single pull rod. The brake cylinders c and return springs d act on the levers i, i', on which also act the toggle levers k', k'' of a toggle arrangement actuated by a lever m, which in turn receives its motion from the main or common

\* These abridgments of recently published specifications are specially compiled for THE RAILWAY GAZETTE by permission of the Controller of His Majesty's Stationery Office. Group abridgments can be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2 either sheet by sheet as issued, on payment of a subscription of 5s. a group volume, or in bound volumes, price 2s. each, and the full specifications can be obtained from the same address price 1s. each.

pull rod of the brake system. The levers  $i^1, i^2$  are provided with blocks  $o^1, o^2$  pressing on discs  $p^1, p^2$ , which are connected together and to the wheel  $a$  by means of bolts  $q$ . Small apertures



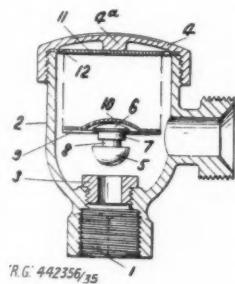
'R.G.' 441665/34

are provided in the wheel body through which extensions  $s^1, s^2$  can pass, the flat surfaces of which lie against one another when the discs  $p^1, p^2$  are drawn together by the bolt  $q$ . Machined portions  $v^1, v^2$  and  $w^1, w^2$  are provided on the wheel  $a$ , and corresponding portions on the discs  $p^1, p^2$ , in order to ensure the correct positioning of the disc axially and radially. Radial blades  $x^1, x^2$  are also provided on the discs  $p^1, p^2$ . Movement is imparted to the levers  $i^1, i^2$  by two pistons moving inside the cylinder  $c$ . The rods of the pistons are connected to the ends of the levers  $i^1, i^2$  in such a manner that they follow the circular movements of the lever ends.—(Accepted January 23, 1936.)

#### No. 442,356. Improvements in Steam Traps

Holden and Brooke Limited, and Daniel Greer McNair, both of Sinus Works, West Gorton, Manchester. (July 19, 1935.)

A steam trap of the bellows type comprises a main portion or body 2 provided with an outlet branch 1 screw-threaded to take a seating 3 and a cover 4, which provides access to the trap. A hemispherical portion 5 is separated from a head 6 by two coaxial stems 7 and 8 of different diameters, the larger 7 being adjacent the head the upper end of which may be curved, that is to say partially spherical or concave. A slotted retaining plate 9 allows the smaller stem 8 of the valve to be slid radially from the outer edge to the centre hole, where the larger stem can pass freely through. The ring with the valve in position is then secured to the base 10 of the bellows, which is concave to accommodate the head of the valve. The valve is free to swivel, as well as to move laterally and vertically. The bellows may be



'R.G.' 442356/35

of any well known type. The top plate 11 forms the upper member of the bellows and fits in a recess in the cover 4, where it is centrally supported by an abutment 4a. The top plate 11

is clamped between the body and cover, forming a steam-tight joint. Small slots 12 are provided between the outer circumference of the bellows and the inner circumference of the trap body, so that fluid pressure is the same at opposite sides of the top plate 11, thus ensuring pressure equalisation on the bellows.—(Accepted February 6, 1936.)

## RAILWAY AND OTHER REPORTS

**Antofagasta (Chili) & Bolivia Railway**—The directors announce that the net revenue for the year 1935, including a dividend from the Andes Trust Limited, and income arising from other investments and after providing for the full year's interest on the debenture stocks, and exchange depreciation of £118,000, was approximately £159,000. There remains to be deducted £45,453 in connection with the lease of the Aguas Blancas Railway, and £50,000, the dividend of 2½ per cent. paid on December 2 last on account of the arrears of dividend on the 5 per cent. cumulative preference stock, leaving £63,500. It is proposed to pay, on June 10, a dividend of 2½ per cent. on the 5 per cent. cumulative preference stock, being the balance of dividend payable in respect of the year 1932, and to add to last year's carry-forward the sum of £13,500.

**Nitrate Railways.**—Gross receipts for the year 1935 amounted to £158,889 and net receipts to £16,853, compared with £264,890 and £58,241 respectively for the previous year. Currency receipts and expenditure for 1935 were converted into sterling at the Chilean official rate of exchange, which averaged 94·70 pesos to the £ in 1935 as against 49·50 pesos in 1934. The operating ratio in 1935 was 89·39 per cent., compared with 78 per cent. for 1934, the increase being due to adjustments in wages and working conditions affecting the Chilean staff, which involved a material addition to currency expenditure, and to heavier maintenance charges in general. The balance at credit of net revenue account, including net receipts, balance of dividends, interest, &c., and £144,487 brought forward, amounts to £195,664.

## COMPLETE SPECIFICATIONS ACCEPTED

- 441,073. Kahn, Dr. M. Permanent ways.
- 441,098. Brush Electrical Engineering Co. Ltd., Hatton, H. W., and Hickman, W. Construction of bodies for railway and tramway vehicles, motor coaches, motor omnibuses, and the like.
- 441,631. Williams, L. Wynn. Facing-point lock stretcher bars for railway switch mechanism.
- 441,654. Black, W. R., and Needs, A. C. Construction of vehicle bodies.
- 441,665. Bergische Stahl-Industrie. Vehicle brakes.
- 442,109. American Fork & Hoe Co. Railway rail-joint shims.
- 442,145. Gerdts, G. F. Steam traps.
- 442,221. Bordinghaus, T. V. A. Joints for connecting rails and the like.
- 442,236. Knorr-Bremse Akt.-Ges. Brake blocks.
- 442,305. Parker, T. G. K. Means for locking railway-carriage doors.
- 442,356. Holden & Brooke, Limited, and McNair, D. G. Steam traps.

To that has been charged £19,204 in respect of exchange differences, leaving £176,460 to be carried forward. No arrangement has yet been reached for the continued working after July 26 next of the Iquique-La Noria Section, which, under the concession, reverts to the Government on July 27.

**J. Stone & Co. Ltd.**—Trading profits for the year 1935 amounted to £196,044, compared with £107,085 in 1934, and the net profit has risen from £44,195 to £126,650. For 1933 there was a loss of £33,635. It is proposed to pay a dividend of 10 per cent. on the ordinary shares, and to carry forward £125,660, against £99,050 brought in. Improvement in business has been maintained, and notwithstanding difficulties which still exist in regard to business abroad this improvement is continuing. During the year the company's works and plant have been fully maintained and the scope of the business has been enlarged in certain directions. A contributory pension scheme for the members of the staff was inaugurated during the year.

## Forthcoming Meetings

- May 27 (Wed.)—**Nitrate Railways Co., Ltd.** (Ordinary General), Winchester House, Old Broad Street, E.C.2, at 11.30 a.m.
- June 9 (Tue.)—**Antofagasta (Chili) and Bolivia Railway Co. Ltd.** (Ordinary General), Winchester House, Old Broad Street, E.C.2, at 12 noon.
- June 12 (Fri.)—**British Electric Traction Co. Ltd.** (Ordinary General), Winchester House, Old Broad Street, E.C.2, at 11.30 a.m.

## CONTRACTS AND TENDERS

Charles Roberts & Co. Ltd. has received an order from Imperial Chemical Industries Limited for 14 underframes for 14-ton tank wagons.

Alfred Herbert Limited has received orders from the Buenos Ayres Great Southern Railway for one Keller die sinking machine type BL and one circular cold sawing machine.

The English Electric Co. Ltd. has received an order for two four-car electric trains for a 2 ft.-gauge pleasure railway at Ramsgate.

Henry Berry & Co. Ltd. has received orders from the Buenos Ayres Great Southern Railway for a hydraulic spring buckle press, stripping press and spring plate forming machine, hydraulic pressure pumps, and accumulators.

The Southern Railway has placed the following orders for rolling stock for the electrified services to Portsmouth: Birmingham Railway Carriage & Wagon Co. Ltd., 19 kitchen cars; Metropolitan-Cammell Carriage & Wagon Co. Ltd., 19 restaurant cars.

The Paris Orleans-Midi Railway has ordered eight 4,000-h.p. electric locomotives from the Cie. Electro-Mecanique, of Paris. These locomotives are intended for the heavily-graded main line from Vierzon to Brive, and it is understood that the price per locomotive is 2,300,000 fr.

The Bombay Baroda & Central India Railway Administration has placed the following orders to the inspection of Messrs. Rendel, Palmer & Tritton:—

Fried. Krupp A.G., 318 carriage and wagon axles.

Steel Peech & Tozer Limited, 636 carriage and wagon tyres.

J. T. Inglis & Son Limited, 285 wagon covers, Anderston Foundry Co. Ltd., 10 sets of 21-ft. Sorbittic over-riding switches.

The Vulcan Foundry Co. Ltd. has received an order from the Buenos Ayres Great Southern Railway for 24 sets of conversion material consisting of new underframes, cylinders and motion for the conversion of class 12B four-cylinder compound engines to two-cylinder simple.

Whitelegg and Rogers Limited is supplying Ajax grease lubricating equipment for 18 of the above sets.

John I. Thornycroft & Co. Ltd. has received an order from Carter Paterson & Co. Ltd. for 30 Handy-class 2-ton chassis.

Leyland Motors Limited has received an order from the New South Wales Government Railways for nine petrol railcar traction units.

Leyland Motors Limited has received orders from railway and railway associated undertakings for road motor vehicles as follow:—

Lincolnshire Road Car Co. Ltd., one diesel-engined Tiger.

Mersey Dock & Harbour Board, four Badgers.

South African Railways, one Terrier.

The Chinese Government Purchasing Commission on behalf of the Ministry of Railways, China, and to the inspection of Messrs. Sandberg has placed orders with the Patent Shaft & Axletree Co. Ltd. for 140 tyres and with Hill & Jackson Limited for a quantity of helical springs.

### Railway Materials Imported into China

According to the Department of Overseas Trade Special Register of Information, dated May 14, 1936, China's imports of locomotives rose from \$1 million in 1934 to \$3.9 million in 1935, but the United Kingdom's share of this business declined from \$531,000 in 1934 to \$429,000 in 1935, while Germany's increased from \$380,000 to \$1,304,000, an advance of nearly a million dollars, and imports from other countries increased from \$1,970 to \$2,051,000. Imports of rails dropped from nearly \$14 millions in 1934 to \$8.5 millions in 1935. The United Kingdom's imports fell heavily from \$6.9 millions in 1934 to \$1.9 millions in 1935, France's from \$3.9 millions to \$1.1 millions, while Germany's rose from \$1.1 to \$4.3 millions, chiefly owing to the large imports of rails from Germany for the light railways now under construction in China, and

probably also to German interests in the Chekiang-Kiangsi extensions.

The Danish State Railways administration has placed an order with Dorman Long & Co. Ltd. for 5,500 tons of rails, valued at £41,250.

Nasmyth Wilson & Co. Ltd. has received an order, to the inspection of Messrs. Robert White & Partners, for one saturated steam boiler for a P class metre-gauge 4-6-0 mixed-traffic locomotive for the Gondal Railway.

The Chinese Government Purchasing Commission is prepared to receive tenders, from British manufacturers only, for the supply of two locomotive boilers, and 22 steel firebox plates, flanged and flat. Tender documents can be obtained at the offices of the Consulting Engineers, Messrs. Sandberg.

## Forthcoming Events

- May 22-June 1.—Institution of Locomotive Engineers. Summer Meeting in Germany.  
May 23 (Sat.).—Hunt's Bank Athletic Festival, at Bloomfield Road Football Ground, Blackpool, 1 p.m.  
May 25 (Mon.).—Indian State Railways, at Café Monico, 19, Shaftesbury Avenue, London, W.1, 7 for 7.30 p.m. Annual Dinner.  
May 26 (Tues.).—Institution of Civil Engineers, Great George Street, London, S.W.1, 6 p.m. "Recent Developments in Metallurgy and their Influence on Engineering," by M. Eugene Schneider.

## The Railway Locomotive

In a paper entitled "The Power Plant on Wheels" read by Mr. A. I. Lipetz before the New York Edison Society, the author said that of the locomotives built for service in the U.S.A. during the six years of the present decade, 63½ per cent. were steam, 26 per cent. electric, and 10½ per cent. diesel. The success of the steam locomotive was put down to its simplicity, overall economy, compactness, and flexibility. As evidence of the compactness it was stated that the heat liberated in a locomotive firebox is 150,000 to 200,000 B.Th.U.'s per cu. ft. of volume per hour, against the 27,000 to 33,000 of modern medium pressure stationary plants. Further, the evaporative capacity of locomotive boilers is 12½ to 14½ lb. per sq. ft. of heating surface per hour and 70 to 120 lb. per cu. ft. of firebox volume,

whereas in stationary plants the respective figures are only 8½-10½ and 22-26 lb. With a properly proportioned firebox, it could be reckoned that for American locomotives the grate area was about one-fiftieth of the continuous horse-power; that is a locomotive with 70 sq. ft. of grate could be rated at 3,500 h.p. With the increase in schedule speeds the steam locomotive now must be capable of running at 100 m.p.h. and braking thus became of great importance. To stop a train such as the six-car Hiawatha from 100 m.p.h. required the dissipation of about 320-million ft. lb. of energy in 60 to 70 sec. Speaking of diesel-electric shunting locomotives, Mr. Lipetz considered an overall economy (including all capital charges) could be shown over steam figures if the diesel worked more than seven hours a day.

## Exports of Railway Material from the U.K. in April

	Four Months Ending			
	Apl., 1936	Apl., 1935	Apl., 1936	Apl., 1935
Locomotives, rail .. .. .	£ 26,908	£ 13,977	£ 469,197	£ 241,337
Carriages and wagons .. .. .	136,352	131,760	562,693	378,017
Rails, steel .. .. .	81,384	43,725	274,110	233,187
Wheels, sleepers, fishplates and miscellaneous materials .. .. .	97,285	158,247	234,087	449,699

Locomotive and rail exports included the following:—

	Locomotives		Rails	
	Apl., 1936	Apl., 1935	Apl., 1936	Apl., 1935
Argentina .. .. .	—	—	£ 1,456	£ 5,802
Union of South Africa .. .. .	—	—	17,817	32,436
British India .. .. .	15,113	6,671	10,705	30,392



## OFFICIAL NOTICES

## Crown Agents for the Colonies

## COLONIAL GOVERNMENT APPOINTMENTS

**A**PPPLICATIONS from qualified candidates are invited for the following post:—  
Traffic Inspector, Grade II, required by the Government of Nigeria for the Railway Department for two tours of 12-18 months each. Salary £400-£475, £450 a year. Outfit allowance of £25. Free passages and quarters and liberal leave on full salary. Candidates, aged 25-35, must have had a thorough all-round training on a Home Railway on both inside and outside work and preferably in both the Operating and Commercial departments. A thorough knowledge of train operating coupled with station and yard working is essential. Knowledge of goods shed working an advantage.

Apply at once by letter stating age, whether married or single, and full particulars of qualifications and experience and mentioning this paper to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M/4329.

## The Buenos Ayres Western Railway Limited

## NOTICE.

**T**HE Directors of the Buenos Ayres Western Railway Limited, hereby give notice that the Register of Debenture Stockholders will be Closed from Wednesday, the 27th May, to Tuesday, the 9th June, 1936, both days inclusive.

By Order of the Board,

H. F. E. GREY,  
Secretary.

River Plate House,  
Finsbury Circus, London, E.C.2.  
20th May, 1936.

## The Chinese Government Purchasing Commission

**T**HE Commission is prepared to receive Tenders from British manufacturers only for the supply of:—

2 LOCOMOTIVE BOILERS;  
22 STEEL FIREBOX PLATES, FLANGED AND FLAT.

Tender documents can be obtained at the offices of the Consulting Engineers, Messrs. SANDBERG, 40, Grosvenor Gardens, London, S.W.1. A non-returnable fee of 30s. will be charged for each set of documents.

**T**HE Owners of Patent No. 342,389 for "Improvements in or relating to transport wagons for passenger carrying automobiles and similar vehicles" are desirous of negotiating with interested parties for the granting of licences thereunder on reasonable terms. For information apply to MESSRS. LLOYD WISE & CO., 10, New Court, Lincoln's Inn, London, W.C.2.

## High Speed and Systematic Times on the Etat

(See editorial note on page 986)

The development of the express services of the French State Railways between Paris and Havre, foreshadowed in our issue of February 7, is realised in the timetables which came into operation on May 15. Not only is there a considerable increase in the service, but systematic departure times have also been adopted. The high speed railcar services are doubled. From Paris (St. Lazare) the cars leave at 8.5 and 10.5 a.m., and 2.5 and 4.5 p.m.; of these the 2.5 calls at Rouen and takes 2 hr. (70.8 m.p.h. overall), but the other three services are non-stop in 118 min. for the 141.5 miles (72.0 m.p.h.). In the reverse direction railcars leave Havre at 10.50 a.m., 12.50, 5.50, and 9.58 p.m., all non-stop except the 9.58, which calls at Rouen. These services alone are responsible for ten daily start-to-stop journeys at over 70 m.p.h., with an aggregate length of 1,132 miles; in all cases first and second-class passengers are carried without supplementary fare. A group of *rapides*, leaving Paris at 8.15 and 10.15 a.m., 1.15, 5.15, and 8.15 p.m., and Havre at 7.25 and 8.54 a.m., 12.54, 4.54, and 8.3 p.m., also make the journey in between 2 hr. 24 min. and 2 hr. 41 min., all these trains calling at Rouen, and, all but one in each direction, at Motteville, Yvetot, and Bréauté-Beuzeville. The time over the 86.6 miles between Paris and Rouen is uniformly fixed in both directions at 83 min., and makes a total of 866 miles with steam haulage booked daily at 62.6 m.p.h. from start-to-stop. Principal intermediate stations between Paris and Rouen are served by a series of express trains at even two-hourly intervals from 7.20 a.m. to 9.20 p.m., taking 110 min. for the 86.6 miles with five stops, and fast railcars fill in the gaps in the service between Rouen and Havre in such a way that there is now an even-interval hourly service between these cities throughout the day. The effect of these changes is that Paris is linked with Havre by a service of eighteen trains whose average time over the 141.5 miles is 139.7 min., equivalent to 60.8 m.p.h., and provides one of the

fastest inter-city services in the world. A service on similarly systematic lines, but at a considerably lower speed, has been developed on the main line to Caen and Cherbourg. Express trains leave St. Lazare at 7.5 and 9.5 a.m., 1.5, 4.24, and 8.5 p.m., for Evreux, Serquigny, Lisieux, and Caen, covering the 148.4 miles in from 3 to 3½ hr.; in connection, railcar services run at two-hourly intervals over the whole route between Mantes-Gassicourt and Caen, by stages, calling at the intermediate station, and feeding into and out of the expresses. Of the expresses, the 7.5, 9.5 a.m., and 4.24 p.m., with a *rapide* at 2.24 p.m. which is non-stop to Lisieux, continue to Cherbourg, the 230.3 miles being covered in a little over 5 hr. Between Paris and Trou-

ville-Deauville, during the height of the season, there will be three daily railcar services in each direction, four covering the 136.2 miles in 2 hr. (68.1 m.p.h.), and the two others taking 122 and 129 min. respectively. These cars, which run at 10.25 a.m., 2.10 and 5.25 p.m. from Paris (St. Lazare) and 9.50 a.m., and 6.20 p.m., and 9.48 p.m. from Trouville-Deauville, work through beyond Deauville to and from Dives-Cabourg. The railcar service between Paris and Bagnoles de l'Orne is also doubled, at 9.10 a.m. and 4.25 p.m. from Paris (Montparnasse) and 9.27 a.m. and 4.9 p.m. from Bagnoles. These cars now stop at La Ferté-Macé, adjacent to Bagnoles, covering the 149 miles between there and Paris in 168 min. down, and 171 and 176 min. up. A new fast railcar service is also run jointly with the Northern Railway from Lille, Arras, and Amiens to Havre and Rouen and back daily.

## Railway Staff and Labour Matters

(By our labour correspondent)

On Tuesday, May 12, there began in London a general meeting of the National Union of Railwaymen, specially summoned to consider the wage proposals which had been discussed by the General Managers of the main-line railway companies and the representatives of the negotiating committees of the unions. Mr. J. Henderson, J.P., M.P., President of the union, was in the chair. After lengthy debates, disappointment was expressed with the proposed arrangement, and the meeting decided not to accept it. It was also decided to instruct the negotiating committee, along with the President and General Secretary of the union and two delegates appointed by the conference, to seek a further interview with the companies with a view to re-opening negotiations.

On Monday last, May 18, the annual assembly of delegates of the Associated Society of Locomotive Engineers and Firemen began deliberations in London, prominent among the subjects on the agenda being the wages question.

The Chairman of the executive committee, Mr. G. H. Tyler, opening the

first session, stated that the society recognised that the railway industry had passed through trying times, but it was contended that the trend of the railway companies' dividends was now upwards and, accordingly, it was claimed that wages should rise. At the time of writing there has been no announcement of the decision of the assembly regarding the proposed wages settlement.

Next week the Annual Conference of the Railway Clerks' Association will be held at Torquay under the presidency of Mr. F. B. Simpson, M.P., and it is expected the position of the claim for the discontinuance of the percentage deduction will be discussed.

While it would be idle to speculate upon the probable developments in regard to this matter, it is anticipated that the executive committees of the three railway trade unions will confer before approaching the companies. In some quarters it is believed that a frank recognition of the realities of the present position of the railway industry should ensure a settlement, satisfactory to all concerned, being reached without undue delay.

## Railway Share Market

General conditions in the stock and share markets have again not been conducive to expansion of business in Home Railway stocks. In fact the volume of business is reported to have contracted a good deal owing to the fear that, although not justified by the traffic receipts, there may be a larger concession in respect of the balance of the 1931 wages cut. If so, it is realised that prospects of Southern deferred and L.N.E.R. second preference re-entering the dividend list for the current year would probably be very slender.

Although last week's traffics were quite satisfactory they had little influence on sentiment, and until the wages position is clarified the effect of traffics on prices may be only of secondary importance. Southern preferred was relatively steady on the £9,000 traffic gain. Last week's figures were the best shown by the railway

for some time as comparison is no longer with the Jubilee period of last year. Nevertheless the deferred was lower at 23½. Great Western reacted to 48½, despite the satisfactory traffic increase of £11,000. Fractional declines were shown on Wednesday by L.N.E.R. first and second preference to 68½ and 26½ respectively, the traffic increase of £4,000 being regarded as disappointing. L.M.S. stocks failed to benefit from the fact that the railway's traffics again make the best showing, the increase last week being £37,000. The ordinary is lower at 23½ while the 1923 preference and 4 per cent. preference both lost fully half a point to 70½ and 86½ respectively. To date the total increase in the railway's receipts is £751,000, which represents an excellent achievement. If this rate of increase is continued for the rest of the year confidence in a small payment on the ordinary stock will be

general. In the case of both Southern deferred and L.N.E.R. second preference hopes of dividends are based on expectations of increased traffics during the second half of the year. London Transport "C" remained steady at 103½.

Inactive conditions continued in the foreign railway market where the chief feature was a revival of interest in Cordoba Central first debentures which improved to over 40. It is reported that much of the buying is from South America. Antofagasta was sold on the report which discloses heavy exchange losses, but the preference kept fairly steady. Argentine railway stocks were dull with lower prices made by B. A. Great Southern and Central Argentine on the continued unfavourable trend in traffics. Central Argentine notes were marked down further to 85. Canadian Pacific was moderately lower but the preference improved. Among American railroad stocks better prices were made by New York Central and Union Pacific.

### Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1935-36	Week Ending	Traffics for Week		No. of Weeks	Aggregate Traffics to Date			Shares or Stock	Prices				
				Total this year	Inc. or Dec. compared with 1935		Totals		Increase or Decrease		Highest 1935	Lowest 1935	May 20, 1936	Yield % (See Note)	
							This Year	Last Year							
South & Central America.	Antofagasta (Chili) & Bolivia	834	17.5.36	13,220	£ 420	20	265,750	248,000	+	17,750	Ord. Stk.	23	1415½	191½	Nil
	Argentine North Eastern ..	753	16.5.36	8,613	— 785	46	362,503	341,585	+	20,918	"	7	4	41½	Nil
	Argentine Transandin ..	174	Apr., 1936	7,150	— 460	17	26,900	26,300	+	600	A. Deb.	491½	30	47½	87½
	Bolivar .. .. .	174	Apr., 1936	7,150	— 460	17	26,900	26,300	+	600	6 p.c. Deb.	13	5	10	Nil
	Brazil .. .. .	2,806	16.5.36	99,295	— 1,059	46	3,913,318	3,639,581	+	273,737	Bonds.	14	11	14	39½
	Buenos Ayres & Pacific ..	190	2.5.36	878,400	— 824,900	44	84,767,260	84,820,000	—	852,740	Ord. Stk.	101½	478	8	Nil
	Buenos Ayres Central ..	5,084	16.5.36	126,792	— 7,092	46	6,011,789	6,647,414	—	635,625	Mt. Deb.	21	10	17½	Nil
	Buenos Ayres Gt. Southern ..	1,930	16.5.36	51,704	— 4,376	46	2,098,146	2,089,280	+	8,866	Ord. Stk.	27	13½	15½	Nil
	Buenos Ayres Western ..	3,700	16.5.36	108,984	— 35,662	46	5,441,060	5,575,937	—	134,877	"	24	10	13	Nil
	Central Argentine .. .. .	273	9.5.36	12,306	— 558	45	502,042	618,812	—	116,770	Dfd.	9	3¼	6½	Nil
	Do. .. .. .	311	9.5.36	2,411	— 276	45	92,827	87,088	+	5,739	Ord. Stk.	8½	3	4½	Nil
	Do. Eastern Extn. ..	185	9.5.36	1,957	— 221	45	65,951	50,107	+	15,844	"	—	—	—	—
	Do. Northern Extn. ..	211	9.5.36	806	— 218	45	39,510	34,367	+	5,143	"	—	—	—	—
	Do. Western Extn. ..	1,218	16.5.36	27,030	— 660	46	1,280,230	1,289,640	—	9,410	Ord. Inc.	4	1	2	Nil
	Cordoba Central .. .. .	188	Mar., 1936	20,510	— 2,253	39	127,429	149,326	—	21,897	Stk.	35	30	36	59½
	Costa Rica .. .. .	70	Apr., 1936	13,600	— 2,900	17	52,100	44,100	+	8,090	1 Mt. Db.	103½	102½	104½	5½
	Dorada .. .. .	810	16.5.36	10,165	— 1,128	46	492,453	559,896	—	67,653	Ord. Stk.	15	6½	8½	Nil
	Entre Rios .. .. .	1,082	16.5.36	5,900	— 200	20	171,200	180,500	—	9,300	Ord. Sh.	1½	3½	1½	Nil
	Great Western of Brazil ..	794	Mar., 1936	8569,809	— 8100,752	13	81,563,107	81,307,612	+	8255,495	"	—	—	—	—
	International of Cl. Amer.	—	—	—	—	—	—	—	—	—	1st Pref.	1½	3½	1½	Nil
	Interoceanic of Mexico ..	22½	Apr., 1936	4,415	— 545	17	17,375	15,500	+	1,875	Stk.	8½	8	8½	Nil
	La Guaira & Caracas ..	1,918	16.5.36	13,426	— 1,601	20	339,455	325,292	+	14,163	Ord. Stk.	8½	2½	7	Nil
	Leopoldina .. .. .	483	14.5.36	8295,300	— 847,100	19	85,005,900	84,655,000	+	8350,900	"	1½	14	5½	Nil
	Mexican .. .. .	319	Apr., 1936	7,396	— 1,035	43	72,302	99,749	+	27,447	"	1½	14	5½	Nil
	Midland of Uruguay ..	401	15.5.36	4,384	— 1,055	19	38,029	55,133	+	2,806	Ord. Sh.	64½	42½	2½	Nil
	Nitrate .. .. .	274	9.5.36	82,770,000	— 81,067,000	45	897,751,000	851,287,000	+	846,464,000	Pr. Li. Stk.	80½	60	77	71½
	Paraguay Central .. .. .	1,059	Apr., 1936	83,397	— 15,092	43	786,623	625,461	+	161,162	Pref.	105½	67½	12	Nil
	Peruvian Corporation ..	100	9.5.36	£20,150	— £2,750	45	£887,546	£953,252	-	£65,706	Pr. Li. Db.	65	61	55	91½
	Salvador .. .. .	153½	10.5.36	30,373	— 7,578	19	545,771	416,143	+	129,628	Ord. Stk.	80	35	53½	41½
	San Paulo .. .. .	164	Apr., 1936	2,745	— 1,755	43	35,495	31,385	+	4,110	Ord. Sh.	11½	11½	1	10
	Taital .. .. .	1,353	16.5.36	26,795	— 4,009	46	1,092,712	1,078,690	+	14,022	Ord. Stk.	31½	1	3	Nil
	Uruguay Northern .. .. .	73	Apr., 1936	854	— 20	43	8,303	10,862	-	2,559	Deb. Stk.	4½	21½	4½	Nil
Canada.	Canadian National .. .. .	23,648	14.5.36	723,077	— 61,694	19	12,480,842	11,739,895	+	740,947	"	—	—	—	—
	Canadian Northern ..	—	—	—	—	—	—	—	—	Perp. Dbs.	78½	52½	67½	51½	
	Grand Trunk .. .. .	—	—	—	—	—	—	—	—	4 p.c. Car.	103½	93	100½	4	
India.	Canadian Pacific .. .. .	17,237	14.5.36	538,600	— 86,000	19	8,022,800	8,168,200	+	854,600	Ord. Stk.	141½	85	12½	Nil
	Assam Bengal .. .. .	1,329	30.4.36	37,755	— 2,331	4	101,842	99,425	+	2,417	Ord. Stk.	92½	77½	85½	3½
	Barsi Light .. .. .	202	20.4.36	3,758	— 397	3	7,920	8,310	-	390	Ord. Stk.	105	77½	72½	67½
Various.	Bengal & North Western ..	2,112	30.4.36	84,797	— 4,522	4	247,075	232,236	+	14,839	Ord. Stk.	301½	291	309	57½
	Bengal Doonars & Extension	161	20.4.36	3,017	— 65	3	5,614	6,543	-	929	"	127½	122	125½	59½
	Bengal-Nagpur .. .. .	3,268	10.4.36	173,625	— 5,459	1	173,625	179,084	-	5,459	"	105	100½	102½	3½
Various.	Bombay, Baroda & Cl. India	3,072	10.5.36	262,725	— 9,375	6	1,114,950	980,250	+	134,700	"	115½	110	112½	59½
	Madras & Southern Mahratta	3,230	30.4.36	177,000	— 7,468	4	509,925	479,702	+	30,223	"	128½	113½	112½	8
	Rohilkund & Kumaon ..	572	30.4.36	17,156	— 905	4	54,392	52,320	+	2,072	"	294	262	300½	59½
Various.	South India .. .. .	2,531	20.4.36	114,473	— 3,734	3	228,927	231,527	-	2,600	"	119½	104½	106½	7½
	Beira-Umtali .. .. .	204	Mar., 1936	66,055	— 7,592	26	382,261	378,782	+	3,479	—	—	—	—	—
	Bilbao River & Cantabrian	15	Apr., 1936	1,385	— 363	17	6,062	7,150	-	1,088	—	—	—	—	—
Various.	Egyptian Delta .. .. .	622	30.4.36	5,282	— 212	4	16,713	16,103	+	610	Prf. Sh.	2	158	1½	51½
	Great Southern of Spain ..	104	9.5.36	870	— 1,105	19	20,596	36,036	-	15,440	Inc. Deb.	3½	2	3½	Nil
	Kenya & Uganda .. .. .	1,625	Feb., 1936	245,527	— 26,405	9	478,026	459,598	+	18,428	"	—	—	—	—
Various.	Manila .. .. .	913	Mar., 1936	99,154	— 19,369	26	698,956	687,786	-	78,830	B. Deb.	48	36	44	71½
	Mashonaland .. .. .	277	Mar., 1936	12,915	— 910	39	124,864	122,226	+	2,638	1 Mg. Db.	104½	100	102½	4½
	Midland of W. Australia ..	1,905	4.4.36	24,697	— 6,824	1	24,697	31,521	-	6,824	Inc. Deb.	98½	93	95	5½
Various.	Rhodesia .. .. .	1,538	Mar., 1936	181,740	— 24,323	26	1,117,186	1,138,252	-	21,066	4 p.c. Db.	105½	101	104½	31½
	South African .. .. .	13,250	25.4.36	596,347	— 121,799	4	2,122,203	1,962,229	+	159,974	"	—	—	—	—
	Victoria .. .. .	4,728	Dec., 1935	866,995	— 3,320	26	4,826,292	4,751,974	+	74,318	"	—	—	—	—
Various.	Zafra & Huelva .. .. .	112	Mar., 1936	9,590	— 1,537	13	30,751	32,962	-	2,211	"	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1%. .

† Receipts are calculated @ 1s. 6d. to the rupee. \$ ex dividend. Salvador and Paraguay Central receipts are in currency.

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements from July 1 onwards are based on the current rates of exchange and not on the par value.